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Oki Data CONFIDENTIAL

B410d/B410dn/B420dn/ B430d/B430dn/B440dn Maintenance Manual

[Rev. 3]

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PREFACE

This Maintenance Manual describes the maintenance methods in the printer field for the maintenance personnel. In addition, regarding the handling and operating method of the printer, please refer to the "User's Manual".

The differences between various types of printers described in this Maintenance Manual are as follows.

		B410d	B410dn	B420dn	B430d	B430dn	B440dn
Engine speed (letter/A4)		30/28	30/28	30/28	30/28	30/28	30/28
Resolution	Max. resolution	2400 x 600 dpi	2400 x 600 dpi	2400 x 600 dpi	1200 x 1200 dpi	1200 x 1200 dpi	1200 x 1200 dpi
Emulation	Standard	PCL6/SIDM	PCL6/SIDM	PCL6/SIDM	PCL6/PS3/ SIDM	PCL6/PS3/ SIDM	PCL6/PS3/ SIDM
	Option	N/A	N/A	N/A	N/A	N/A	N/A
Operation panel	LCD display	16 character x 2	16 character x 2	16 character x 2	16 character x 2	16 character x 2	16 character x 2
	Switch	1 (online/ offline)	1 (online/ offline)	6	6	6	6
	LED lights	2	2	2	2	2	2
Input tray (Manual/Auto)		Single sheet manual feed	Single sheet manual feed	50 sheets Multi Purpose Feeder	50 sheets Multi Purpose Feeder	50 sheets Multi Purpose Feeder	50 sheets Multi Purpose Feeder
Input tray (1st bin)		250 sheets	250 sheets	530 sheets	250 sheets	250 sheets	530 sheets
Maximum Input capacity		781	781	1110	830	830	1110
Interface	USB 2.0	√	√	√	√	√	√
	Parallel	√	√	√	√	√	√
	Ethernet	N/A	√	√	N/A	√	√
Auto Duplex		Standard	Standard	Standard	Standard	Standard	Standard
Monthly Duty Cycle	Maximum	50,000 pages	50,000 pages	70,000 pages	70,000 pages	70,000 pages	70,000 pages
Toner life@ISO19752		3,500	3,500 (7,000 available for JPN only)	3,500/7,000/ 10,000	3,500/7,000	3,500/7,000	3,500/7,000/ 10,000
Dimensions (inch./mm)	Width	14.5"/369mm	14.5"/369mm	14.5"/369mm	14.5"/369mm	14.5"/369mm	14.5"/369mm
	Depth	15.6"/395mm	15.6"/395mm	15.6"/395mm	15.6"/395mm	15.6"/395mm	15.6"/395mm
	Height	10.6"/268mm	10.6"/268mm	11.7"/297mm	10.6"/268mm	10.6"/268mm	11.7"/297mm
Sales Territories	ODA 100v	√	√	√	√	√	N/A
	ODA 200v	√	√	√	√	√	N/A
	OEL	√	√	N/A	√	√	√
	AOS 1byte	√	√	N/A	√	√	√
	AOS 2byte	√	√	N/A	√	√	√
	Japan	N/A	√	N/A	N/A	√	N/A
	China	N/A	√	N/A	N/A	√	N/A

Note! • It is prohibited to reprint entire or partial of the content without prior consent.

• For the reason of printer improving and manual content revising, the content of this maintenance manual may change without any warning in the future.

Contents

1. CONFIGURATION 7
1.1 System Configuration 7
1.2 Printer Configuration 8
1.3 Optional Configuration 11
1.4 Specification 12
1.5 Printing display 15
1.5.1 VCCI label, Serial No. label 15
1.5.2 Warning label 15
1.5.3 Warning / Caution display 16

2. Operational explanation 17
2.1 Electrophotographic process mechanism 17
2.2 Printing process 24
2.3 Toner entrance detection 28

3. Parts replacement 30
3.1 Preparation for parts replacement 30
3.2 Parts layout 32
3.3 Parts replacement method 37
3.3.1 LED Head 38
3.3.2 Roller-Transfer 39
3.3.3 Cover-Side-R 40
3.3.4 Cover-Side-L 41
3.3.5 CU Board 42
3.3.6 Motor-DC-Main 43
3.3.7 OPE Cover-Assy 44
3.3.8 Ope-Board 45
3.3.9 MPT-Assy (In case of B410dn, it is Manual-Assy) 46
3.3.10 Front-Guide-Assy 47
3.3.11 Roller-Assy-Feed 48
3.3.12 Guide-Paper-Duplex 49
3.3.13 Stacker-Cover-Assy 50
3.3.14 Fuser-Assy 51
3.3.15 Rear-Cover-Assy 53
3.3.16 Frame-Assy-Lower 54
3.3.17 High voltage / Low voltage power board 56
3.3.18 Plate-Bracket-Motor 57
3.3.19 Roller-Back up 58
3.3.20 Roller-Resist 59
3.3.21 Lever-In-Sensor 60
3.2.22 Lever-Eject-Sensor/Photo-Interrupter 61
3.3.23 Lever-End/Lever-Duplex/Lever-Cassette/Gear-Assy-Clatch 62
3.3.24 Paper feeding roller (Roller-Pick-Up,Roller-Feed-NOW,Roller-Assy-MPT) 64
3.4 Lubricating points 66

4. ADJUSTMENT 77
4.1 Category and function of maintenance mode 77
4.1.1 User maintenance mode (Administrator Menu) 77
4.1.2 System maintenance mode (System maintenance menu) 82
4.1.3 Engine maintenance mode 87
4.1.4 Environment mode setting 95
4.1.5 EEPROM Initialization 96
4.2 Adjustment at part replacement 97
4.2.1 EEPROM data upload / download method 97

5. Periodic Maintenance 98
5.1 Periodic Replacement Parts 98
5.2 Cleaning 98
5.2.1 Cleaning of LED lens array 98
5.2.2 Cleaning Page Function 100

6. Procedures for Repairing 101
6.1 Troubleshooting 101
6.2 Points to be checked before modifying printing problems. 101
6.3 Points to be checked when the printing problems are modified 101
6.4 Preparation for Troubleshooting 101
6.5 Troubleshooting Flow 102
6.5.1 LCD Status Message/ Trouble Table 102
6.5.2 LCD Message Troubleshooting 114
6.5.3 Print Troubleshooting 122

7. Connection Diagram 130
7.1 Connection diagram 130
7.2 Board Layout 131
7.3 Resistance value 145

Appendix A Centronics Parallel Interface 147

Appendix B USB Interface 154

Appendix C Maintenance Manual for Second Tray unit 156
1 Overview 156
1.1 Function 156
1.2 Exterior and Parts Name 156
2. Description for Operation of Second Tray unit 157
3. Part Replacement 158
3.1 Precautions on replacing parts 158
3.2 Arrangement of Parts 159
3.3 How to Replace Parts 160
3.3.1 Roller-Pick-Up, Roller-Feed-Now 161
3.3.2 Guard-Connector, Connector (9715S-08Z02-G4C) 162
3.3.3 Roller-Feed 163
3.3.4 Board-OT7 164
3.3.5 CONN Cord-AMP8P-AMP8P 165
3.3.6 Gear-Assy-Clatch 166
3.3.7 Frame-Assy-Retard, Spring-Retard 168

4. Cleaning of Paper Feed Roller and Separation Roller 169
5. Procedure for Troubleshooting 170
5.1 Precautions for Troubleshooting 170
5.2 Preparation before Troubleshooting 170
5.3 Troubleshooting Method 171
5.3.1 LCD Status Message List 172
6. Connection Diagram 174
6.1 Connection diagram 174
6.2 Board Arrangement 174

Appendix D Network Interface 176

1. CONFIGURATION

1.1 System Configuration

As the diagram 1.1 shows, for the standard configuration printer is configured by controller unit and engine unit.

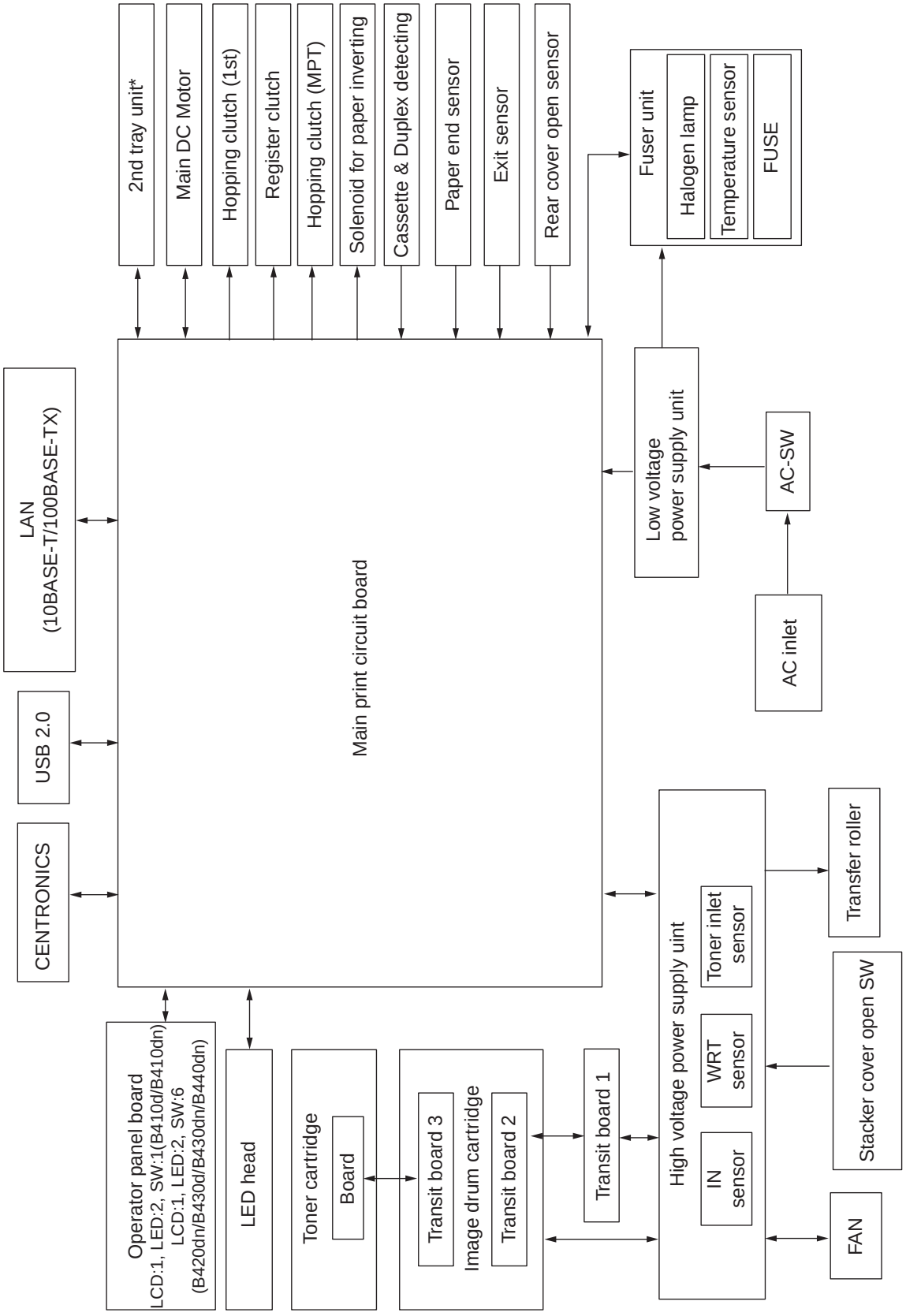


Figure1-1

1.2 Printer Configuration

The printer main unit includes the following hardware parts.

- Electrophotographic processing part
- Paper feeding part
- Controller
- Operational part
- Power supply unit

Note! • Fuser-Assy has to be replaced by Assy unit.
• It is forbidden to disassemble Fuser-Assy or reuse the disassembled Fuser-Assy.

The configuration of printer main unit is shown as diagram 1-2~1-4

B410d/B410dn

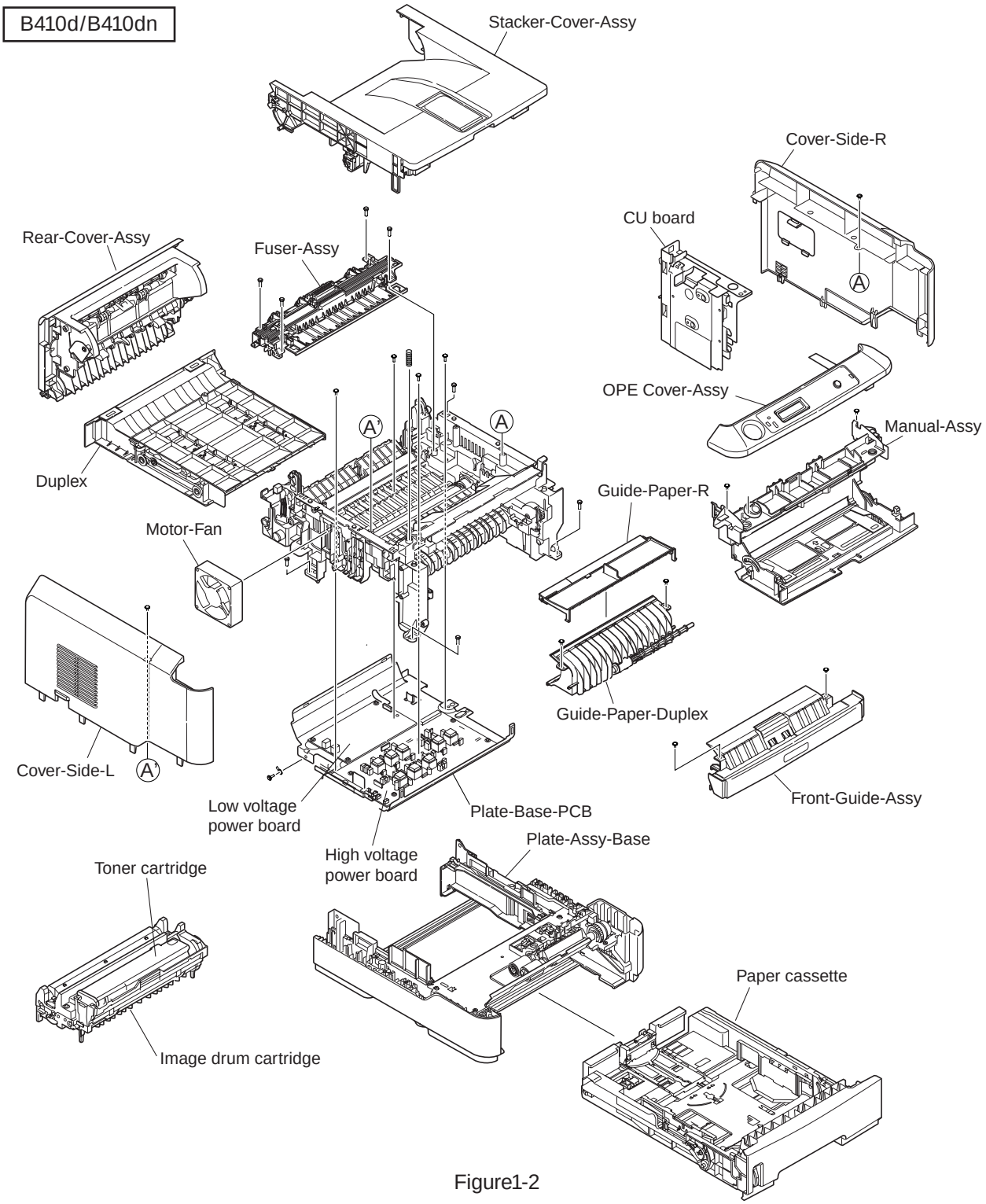


Figure1-2

B430d/B430dn

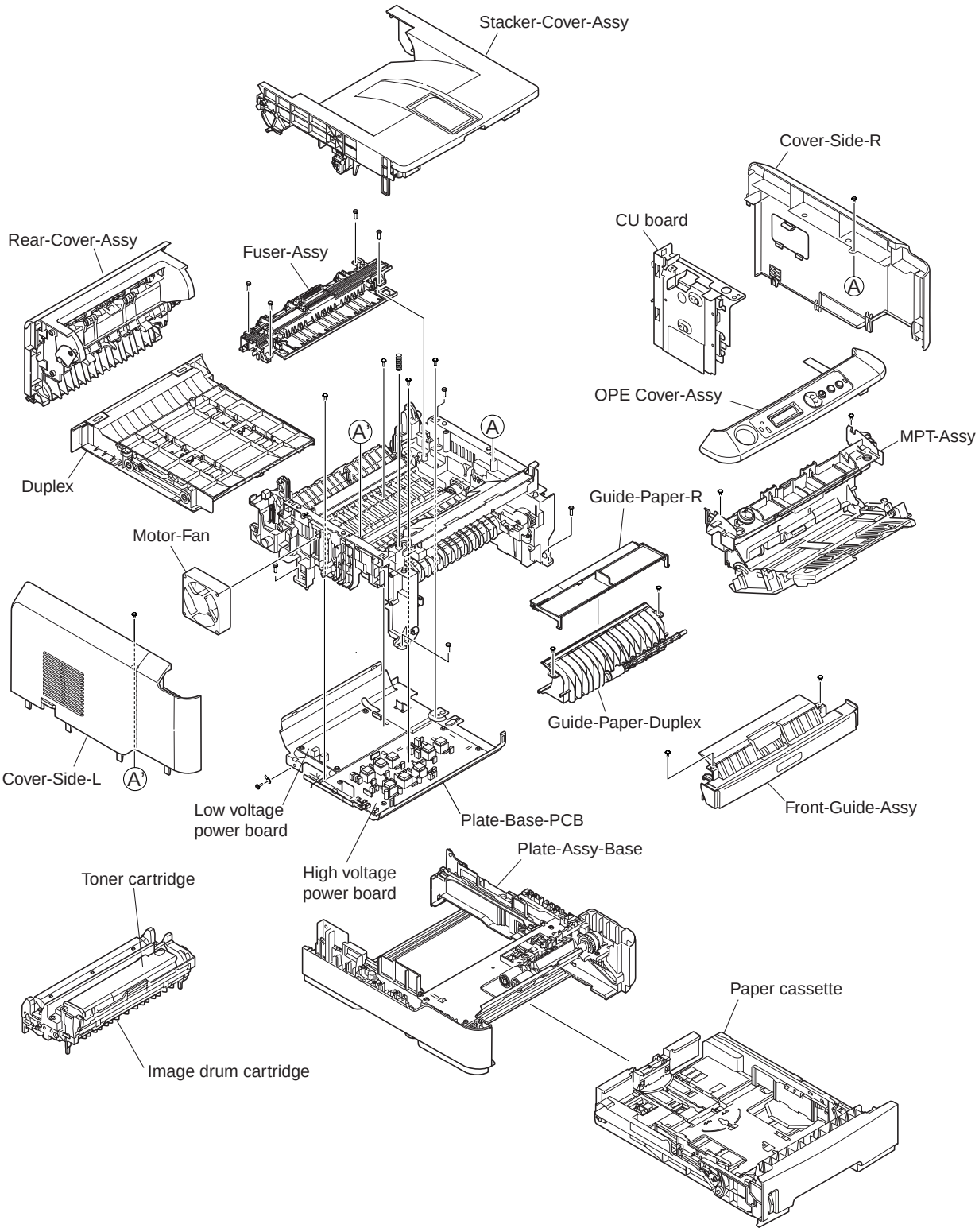


Figure1-3

B420dn/B440dn

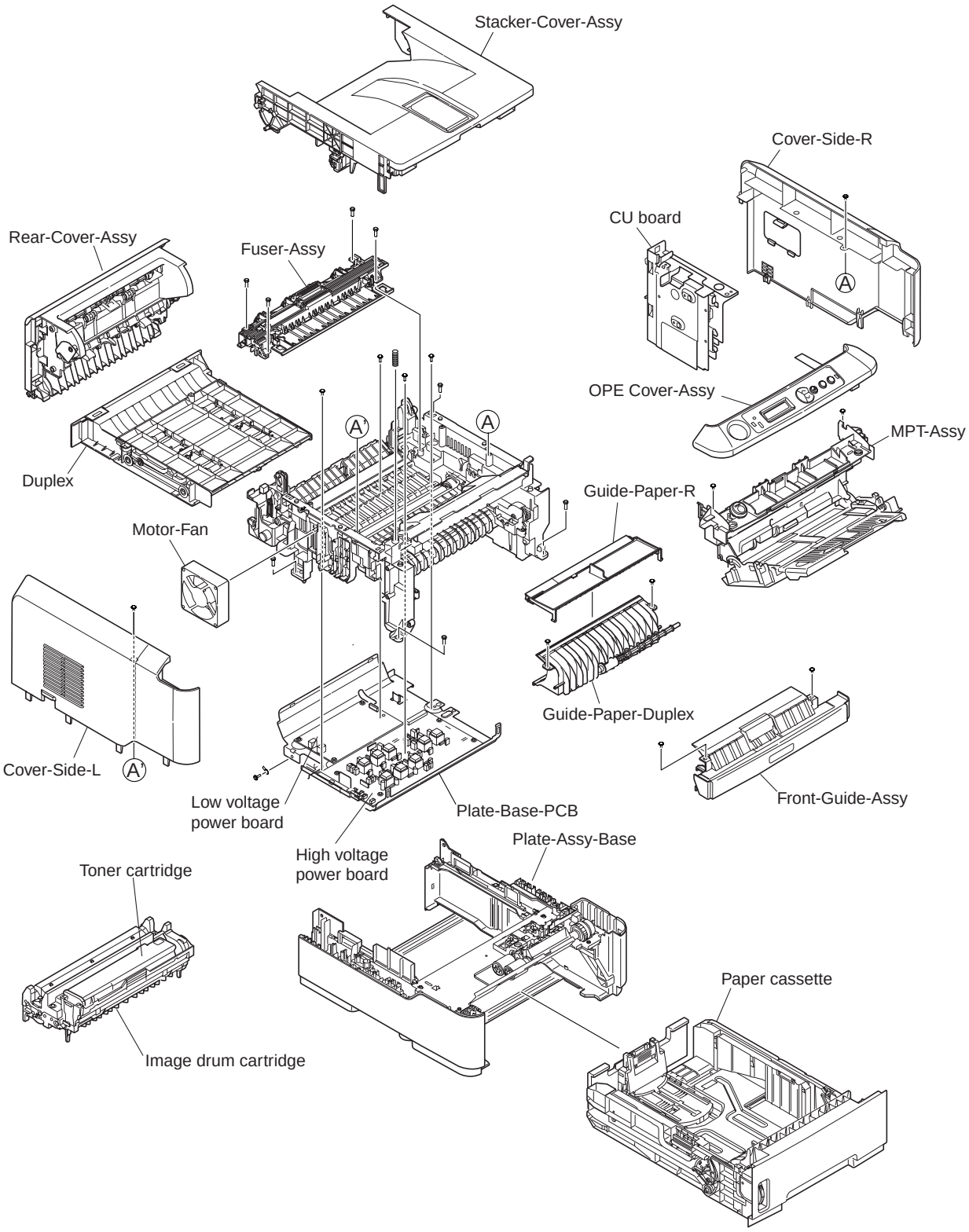
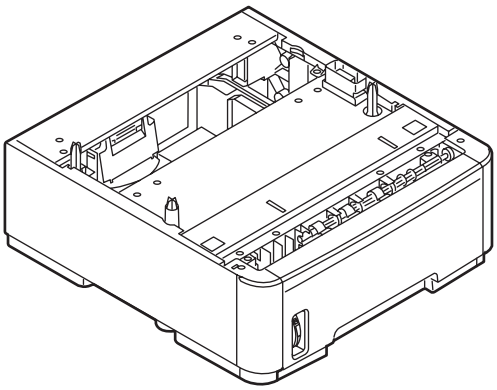


Figure1-4

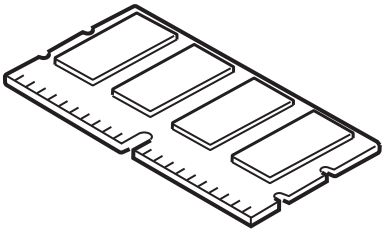
1.3 Optional Configuration

The options attached to the printer are as follows. These options can be ordered respectively for the printer main unit.

(1) Second tray unit



(2) Additionally installed memory (Domestic oriented printer only use 128MB.)



1.4 Specification

(1) Type — Desktop

(2) Dimension — 268mm (Height) x 369mm (Width) x 395 (Depth)
:B410d/B410dn/B430dn
297mm (Height) x 369mm (Width) x 395mm (Depth)
:B420dn/B440dn

(3) Weight — Approx. 10.6kg (Including printer main unit & consumables. Options, Feeding quantity of paper are excluded.)

(4) Development method — Dray type – Element developing method

Exposure method — LED Head method

(5) Paper type, thickness, Size

Recommended paper — Normal paper……..Excellent white A4
OHP Sheet……..Sumitomo 3M CG3300
Label paper……..Kokuyo LBP-A693

Category	Size unit: mm (inch)		Thickness
Normal Paper	A4		Weight 55~105kg(64~120g/m^2)
	A5		For double-side printing, weight55~90kg
	A6		(64~105g/m^2)
	B5		
	Letter		
	Legal		
	Legal		
	Statement		
	Executive		Tray 1, Width 100~215.9, Length 210~355.6
	Custom	Width86~215.9 Length 140~355.6	Tray 2, Width 148~215.9, Length 210~355.6
Postcard	Postcard		Postcard
	Return Postcard		
Envelope	Envelope 1 (Chou #3)		The envelope should be using 85g/m paper. The flap of the envelope Chou type should not be with fold, the flap of the envelope you should be clearly folded.
	Envelope 2 (Chou #4)		
	Envelope 3 (You #4)		
			The envelope should be using 24 lb. paper and the flap part of it should be clearly folded.
	Custom	Width86~215.9 Length 140~355.6	
Label Paper			
	Letter		
OHP Sheet			
	Letter		
Partial Printing Paper			Weight 55~105kg(64~120g/m^2)
Paper for Color Printing			Weight 55~105kg(64~120g/m^2)

(6) Paper feeding method / Ejecting method

○ : It is possible to use it.
× : It is not possible to use it.
△ : It is possible to use it by a part of size

Type	Size	Thickness (Weight:Kg)	Paper feeding Method				Paper ejecting method		Double-side print							
			Paper cassette		Multipurpose tray *1	Manual	Face up	Face down	Automatic double-side print *2				Manual double-side print			
			Tray 1	Tray 2 *4					Tray 1	Tray 2 *4	Multipurpose tray*1	Manual	Tray 1	Tray 2 *4	Multipurpose tray *1	Manual
Normal paper	A5 *5 B5 *5 Executive *5	Weight 55~105kg	○	○	○	○	○	○	×	×	×	×	○	○	○	○
	Statement *5	Weight 55~105kg	○	×	○	○	○	○	×	×	×	×	○	×	○	○
	A4 Letter Legal (13 inch) Lega (14 inch)	Weight 55~90kg	○	○	○	○	○	○	○	○	○	×	○	○	○	○
		Weight 91~105kg	○	○	○	○	○	○	×	×	×	×	○	○	○	○
	A6 *5	Weight 55~105kg	×	×	○	○	○	×	×	×	×	×	×	×	○	○
	Custom *3 *5 Width 86~215.9mm Length 140~355.6mm	Weight 55~90kg	△	△	○	○	○	○	△	△	△	×	△	△	○	○
		Weight 91~105kg	△	△	○	○	○	○	×	×	×	×	△	△	○	○
Postcard *5	Postcard/ Return postcard	Postcard or less than weight 135kg	×	×	○	○	○	×	×	×	×	×	×	×	×	×
Envelope *5	Envelope1 (CHOU 3) Envelope2 (CHOU 4) Envelope3 (YOU 4) Com-9 Com-10 DL C5 C6 Monarch	*6	×	×	○	○	○	×	×	×	×	×	×	×	×	×
	Custom Width 86~215.9mm Length 140~355.6mm	*6	×	×	○	○	○	×	×	×	×	×	×	×	×	×
Label paper	A4/Letter	0.1~ 0.5mm	×	×	○	○	○	×	×	×	×	×	×	×	×	×
OHP	A4/Letter	0.1~ 0.5mm	×	×	○	○	○	×	×	×	×	×	×	×	×	×

*1: Multipurpose tray can be used for B420dn/B430dn/B440dn.

*2: Face-up paper ejecting is not available at automatic double-side printing.

*3: Tray 1 is as width 100~21539mm, length 210~355.6mm. Tray 2 is as width 148~215.99mm, length 210~355.6mm.

*4: Tray 2 (The second tray unit) is for option.

*5: In case to set up the paper size for A5, A6, Postcard, Envelope, if the width of B5, Executive, Statement, Normal paper is less than 200mm, also if thick paper or thicker paper has been set up for the paper thickness, the printing speed changes to be slowly.

*6: • Envelope CHOU should be made by the paper or basis weight of 85g/m^2 and without any fold on the flap part.
• Envelope YOU should be made by the paper of basis weight of 85g/m^2 and with clear fold on the flap part.
• Com-9, Com-10, Monarch, C5, C6, and DL should be the envelope using 24lb paper and with clear fold on the flap part.

(7) Printing speed

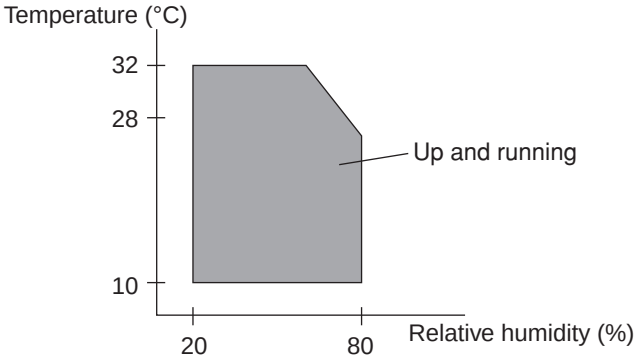
Continuous printing : Maximum 28 piece/second (A4, At copy mode, First try)
For Envelope • Postcard, if to enhance the printing quality, the printing speed changes to be decreased.
For the resolution degree of 600 x 2400, if to enhance the printing quality, the printing speed changes to be decreased.

Warm up time : Approx. 25 second (25°C, 100V)

(8)	Paper feeding method	Automatic feeding
(9)	Paper ejecting method	Face down (Rear ejecting) / Face up (Front ejecting)
(10)	Resolution (Max.)	2400 × 600 dots / inch (B410d/B410dn/B420dn) 1200 × 1200 dots / inch (B430d/B430dn/B440dn)
(11)	Input electricity	AC100V ± 10V, 50/60Hz ± 1Hz(B410dn/B430dn)
(12)	Electricity consumption	Up and running: Maximum 800W, Average 450W (25°C) Ready and waiting: Average 70W (25°C) Power-saving mode: (Without option) Under 6W (With option) Maximum 7W

(13) Temperature and Humidity

	Tenperature	Humidity
Up and running	10~32°C	20~80%RH (Relative Humidity) No condensation. However, Maximum temperature of wet ball should be 25°C.
Power switch off	0~43°C	10~90%RH (Relative Temperature) No condensation. However, Maximum temperature of wet ball should be 26.8°C.
Keeping	-10~43°C	10~90%RH (Relative Humidity) No condensation. However, Maximum temperature of wet ball should be 26.8°C.



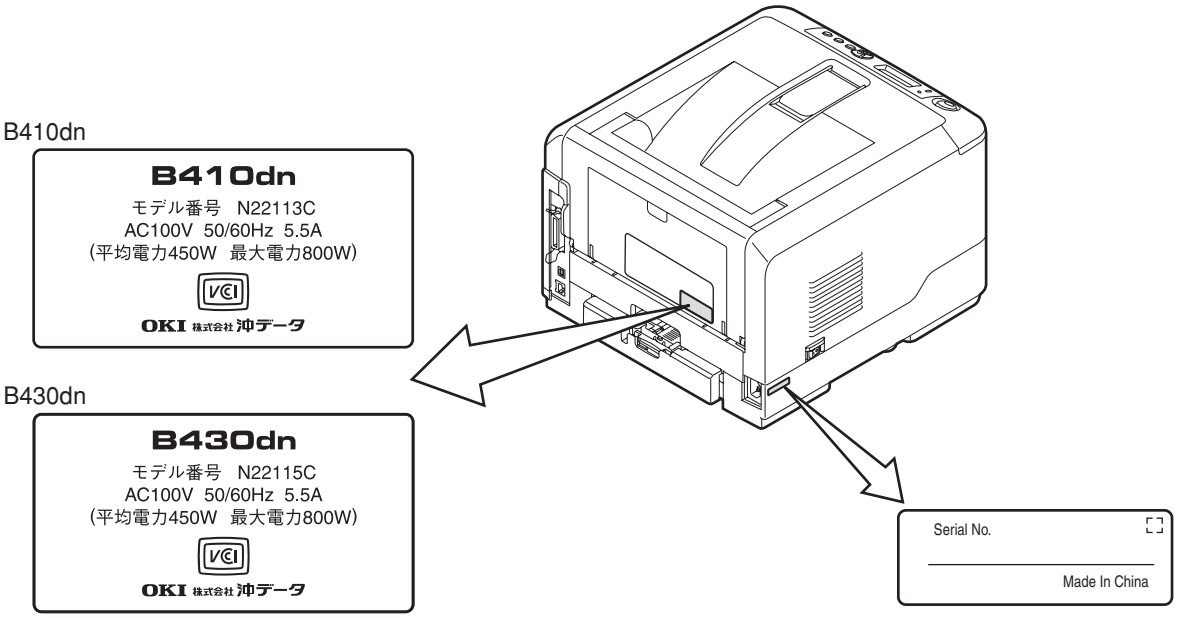
(14) Operating noise
In Printing : Rage A based on JIS Z9831, Average below 53dBA for SLOW.
Ready and waiting : Rage A based on JIS Z9831, Average below 53dBA for SLOW.
At power save : No sound (Background level)

(15) Consumables
Toner cartridge : Approx. 3,500 piece /Approx. 7,000 piece/Approx. 10,000 piece(A4 ISO/IEC 19752 Continuous printing as printing paten. But, except the 1st Toner cartridge)
Image drum : Approx. 25,000 piece (Continuously single-side printing of A4)
Cartridge : Approx. 20,000 piece (Single-side 3 pages/job) At Power save off.
Approx. 12,000 piece (Single-side 1 page/job) At Power save off.
Approx. 7,000 piece (Single-side 1 page/job) At Power save on (Minimum value).

1.5 Printing display

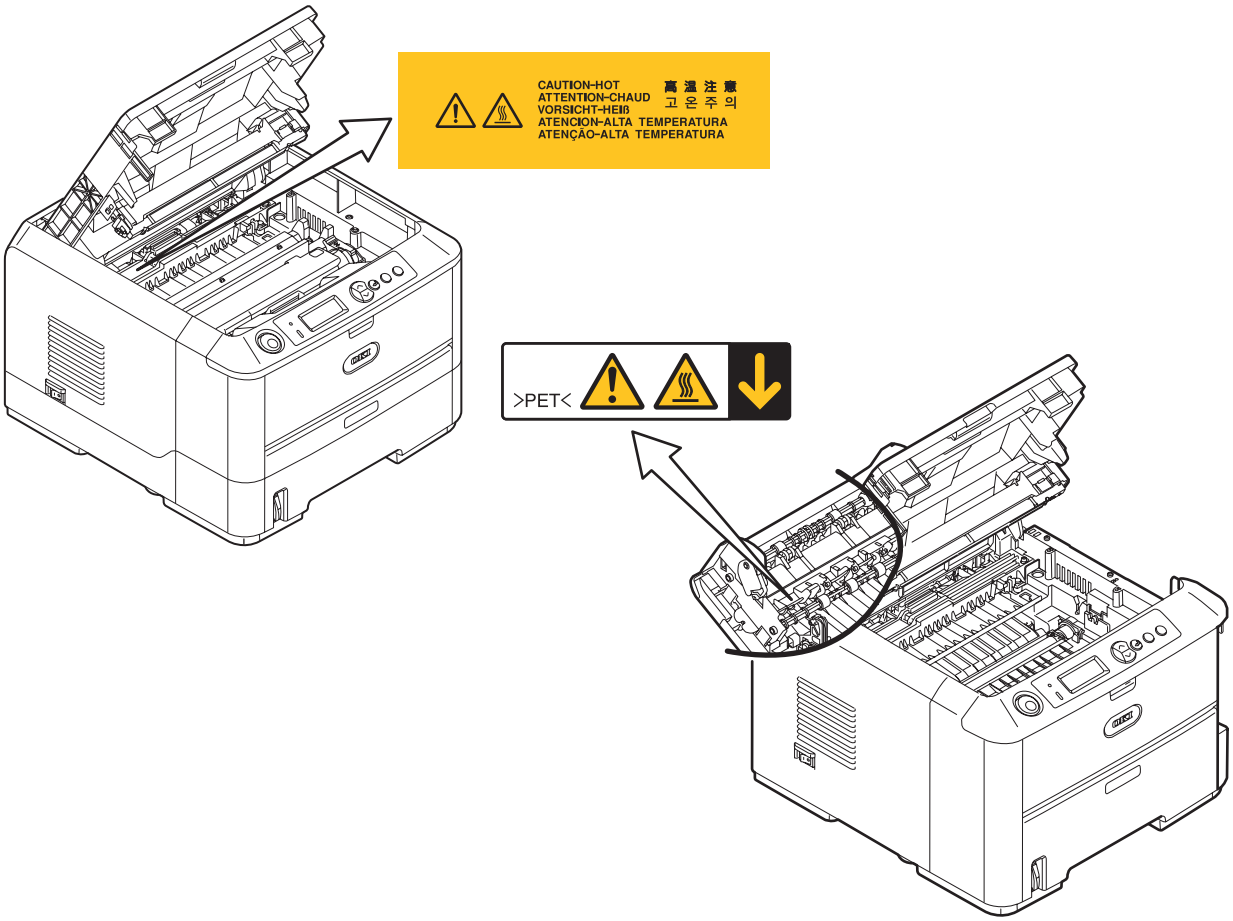
1.5.1 VCCI label, Serial No. label

The VCCI label and Serial No. label have been attached on the specified part of printer as shows below.



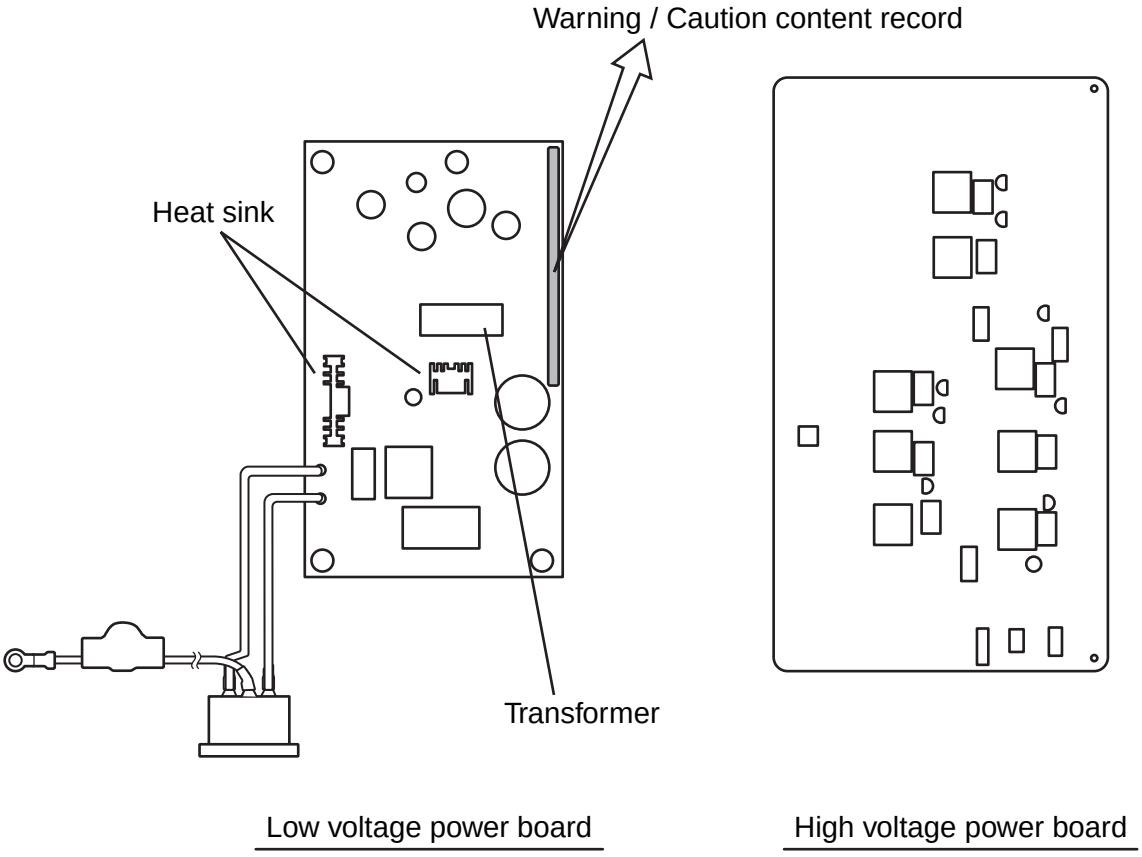
1.5.2 Warning label

Warning label has been attached on the part of printer that may cause injury to the operator. Maintenance must be performed following the indication of the warning label.



1.5.3 Warning / Caution display

The following warning / caution are displayed on the electrical power / sensor board.



Note! • There is a risk of electric shock in the middle of the heat sink and transformer. Be sure to check before touch it.

• It may happen that the electricity has still left on the electrical circuit even after the fuse opened.

2. Operational explanation

2.1 Electrophotographic process mechanism

(1) Electrophotographic process

The following describes the overview of electrophotographic process.

1. Charging

Equally charge the surface of image drum by implying negative voltage to the charged roller due to negative charge.

2. Exposure

The light from LED Head is exposed on the negative-charged surface of image drum. The surface electrical potential of the exposed part of image drum surface becomes lower. Then forms electrostatic latent image.

3. Development

Negative-charged toner is attracted to the electrostatic latent image due to electrostatic while touching the image drum. Then forms viewable image.

4. Transfer

Overlap paper on the surface of OPC drum, from the backside of paper transfer toner image to the paper by applying electrical charge by transfer roller.

5. Drum cleaning

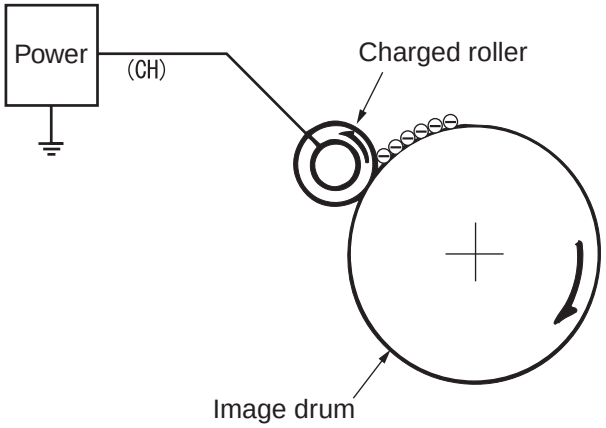
The remaining toner on the image drum that is not transferred is made to be equable by cleaning roller. And is temporarily attracted to the cleaning roller due to electrostatic.

6. Fusing

The toner image that is transferred to paper is fused on paper by heat and pressure.

1. Charging

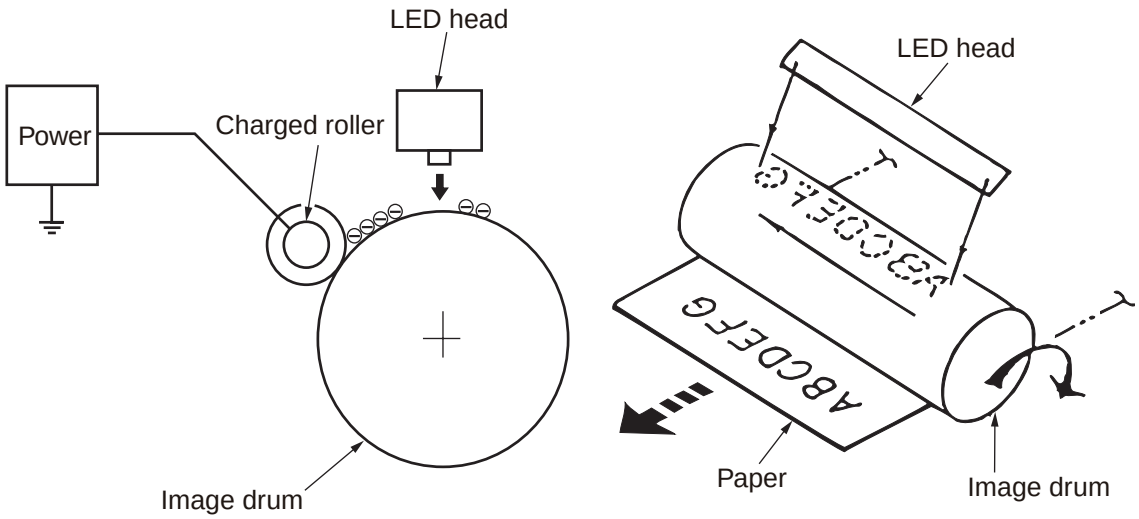
Charge the image drum surface by implying voltage to the charged roller that contacts the image drum surface.



2. Exposure

The light emitting from the LED Head will be exposed to the negative charged image drum. When the surface electric potential of exposed part of the image drum goes to decrease, the electrostatic latent image complying with image signal is formed.

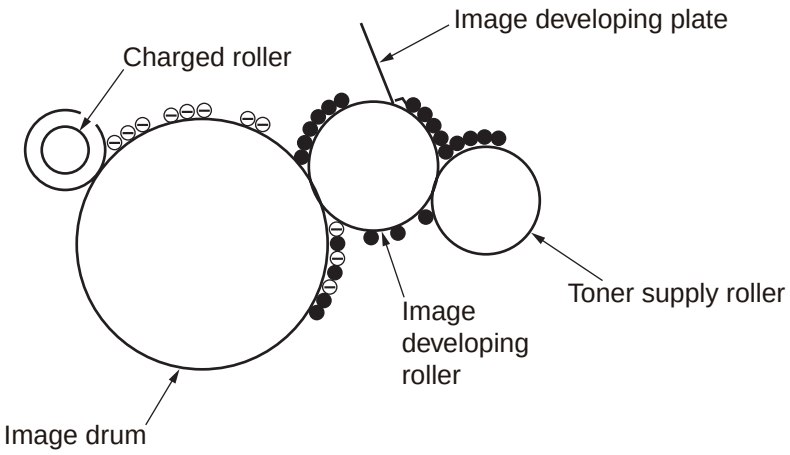
Image drum is coated by basic layer (UL), charge generating layer (CGL), charge transferring layer (CTL) on the basic material aluminum. The thickness of the organic light sensor (OPC) that is consisted by CTL and CGL is approximate 20µm.



3. Image development

Toner is attracted to the electrostatic latent image on the image drum surface, then the electrostatic latent image changes to toner image.

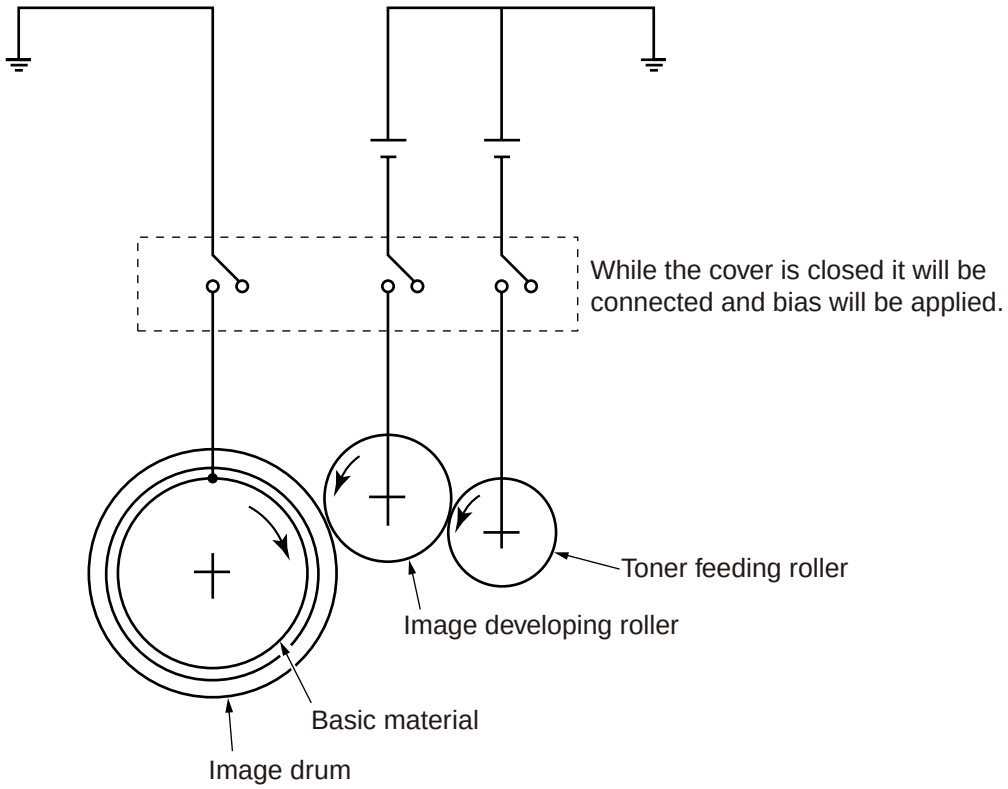
1 As the roller on the supply spot of toner rotates while scrubbing the image-developing roller, fiction electricity occurs between the image developing roller and toner; toner is attracted to the image-developing roller.



2. The toner that has been attracted to the image-developing roller is dropped down to the developing plate to make a thin toner film on the image developing roller side.

3 The toner is attracted by the exposed part (Low electrical potential part) of the image drum when the image drum contact the image developing roller, so as to see the electrostatic latent image.

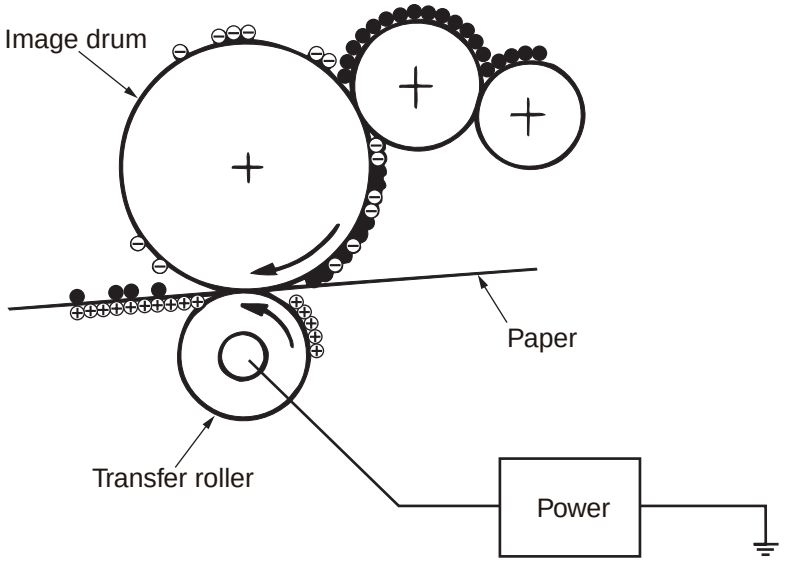
Note! The necessary bypass voltage in image processing is impressed on the toner feeding roller and image developing roller as show below.


While the cover is closed it will be connected and bias will be applied.
Toner feeding roller
Image developing roller
Basic material
Image drum

4. Transfer

The transfer roller, which is from conductive sponge material, is created to meet intimate attachment of image drum roller surface and feeding paper. The feeding paper is set up on the surface of image drum. Plus charge, which is the converse polarity with toner polarity, is applied from the backside of the paper.

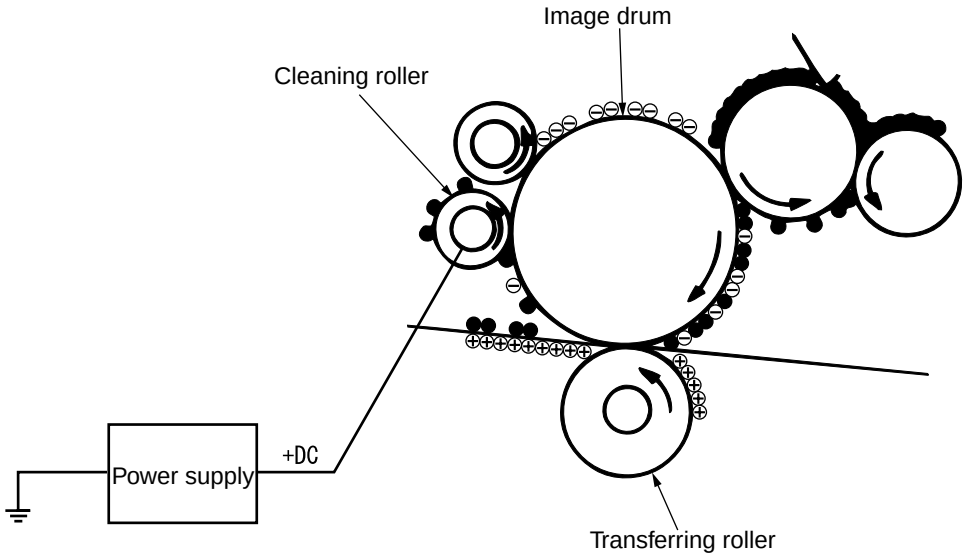
As high plus voltage is applied to transfer roller from the power supply, the plus charge on the transfer roller surface is induced and transferred to the paper while the paper contact the transfer roller. The negative charged toner, which has been attracted to the image drum surface, is transferred to the surface of feeding paper by the plus charge of the backside of the paper.



5. Drum cleaning

1 Cleaning

After the completion of transferring, the remaining toner on the image drum is temporarily attracted by the electrostatic and the image drum surface is cleaned.



2 Roller cleaning

In the following case, there is a need of cleaning the charged roller, transfer roller, and cleaning roller.

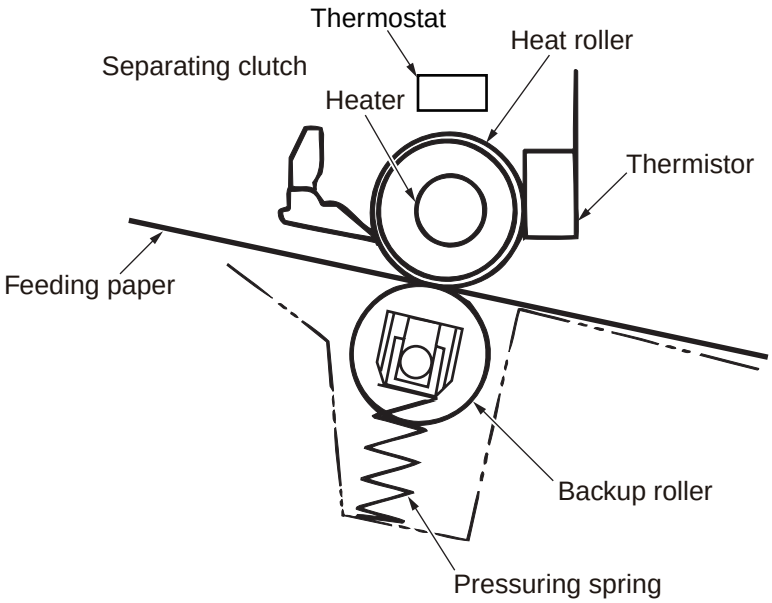
- Warming up as switching on the power supply
- Warming up after open-close of the cover
- In case of termination of printing operation
- By periodically change the bias voltage that is implied to each roller during continuous printing, transfer the attached toner from roller to image drum and then return it to developing device.

6. Fusing

After the termination of transfer the unsettled toner image is settled to paper by heat and pressure while passing between Heat roller and Back up roller. Heat roller is Teflon coated and is mounted by heater that can generate heat (Halogen lamp).

The thermistor that contacts the Heat roller adjusts the Heat roller temperature to the temperature specified by the menu complying with the paper width. For safety the thermostat shuts off the voltage supply to the Heater by opening the thermostat in the case of abnormally temperature increasing.

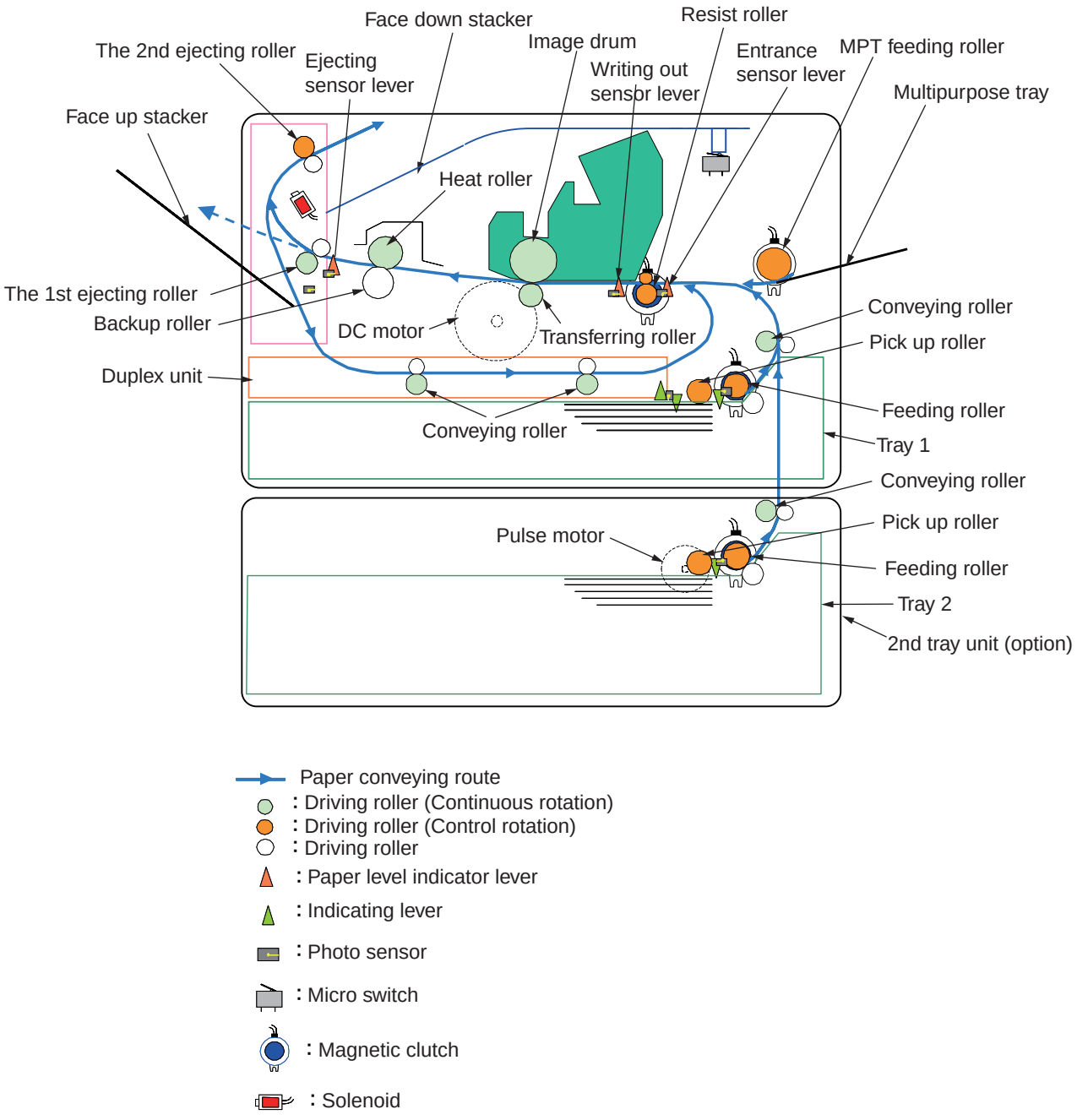
The back up roller is held by the pressure springs on each terminal due to the pressure applied.



2.2 Printing process

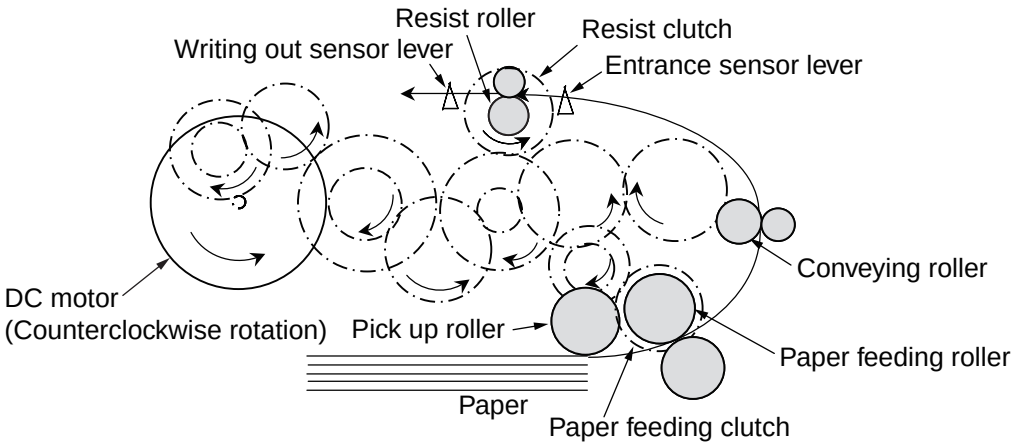
The paper fed from Tray 1 and Tray 2 is conveyed by feeding roller, conveying roller, and resist roller. When feeding paper is from MPT, it is conveyed by MPT, feeding roller, and resist roller. After that the feeding paper that is conveyed by image drum and the nip part of transfer roller forms toner image on the paper through electrophotographic process. And then, the toner on the paper is fused by the heat and pressure as the fuser unit passing through. The paper that fused the toner image is ejected from the face down stacker of the ejecting roller. In the case of face up ejecting, it needs to open the backside cover and install face up stacker. (It is unavailable for duplex printing while it is face up ejecting.)

The above is about the operations at simplex printing, yet the below explains the operations at duplex printing. While duplex printing, the paper, which firstly passed through the fuser unit after the backside printing, is conveyed to the inward of Duplex Unit, by the reverse operation of the second ejecting roller that is a certain time after removing the first ejecting roller of the paper rear side. Paper, is conveyed by conveying roller of Duplex Unit, and then merges to the same route with the feeding paper that is from the tray. Onwards, it is the same with the simplex printing operation by the feeding paper from tray.



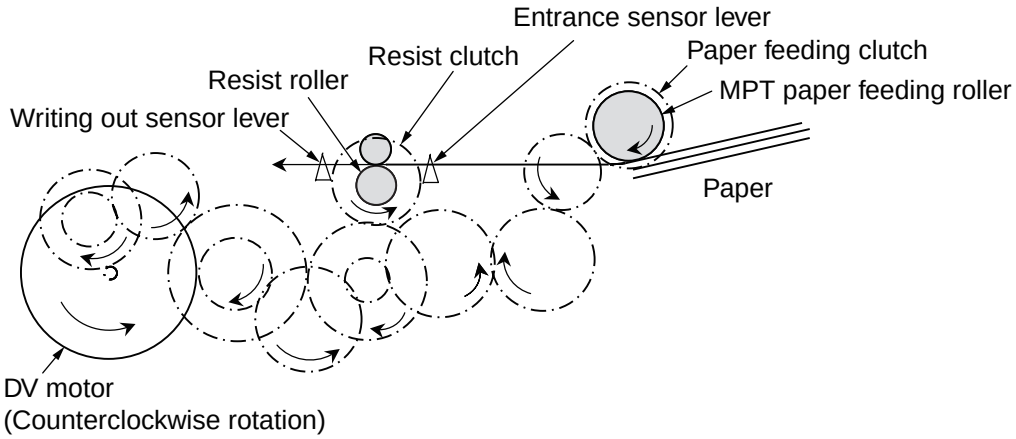
(1) Paper feeding from Tray 1

1. As DC motor rotating (Counterclockwise rotation), if set the paper feeding clutch as ON, as the paper feeding roller and pick up roller rotating, the paper that is inside the tray is conveyed.
2. The paper is conveyed by the conveying roller. After the entrance sensor level set to be ON, it bumps into the stopping resist roller, a certain more amount of paper is conveyed. (This corrects the paper skew.)
3. If set the resist clutch as ON, the paper is conveyed by resist roller.



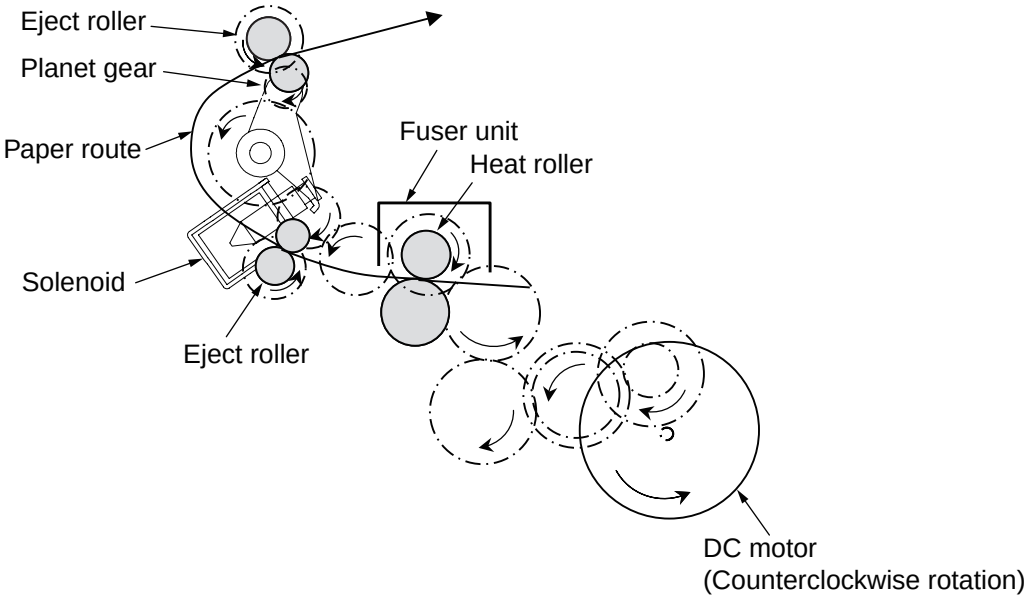
(2) Paper feeding from Multipurpose tray (MPT)(B420dn, B430d, B430dn, B440dn)

1. As DC motor rotating (Counterclockwise rotation), if set paper feeding clutch as ON the MPT paper feeding roller starts to rotate, the paper in the tray is conveyed.
2. After setting the entrance sensor lever as ON, the paper bumps into the stopping resist roller, a certain more amount of paper is conveyed. (This corrects the skew of paper.)
3. If set the resist clutch as ON, the paper is conveyed by resist roller.



(3) Fuser unit and paper ejecting

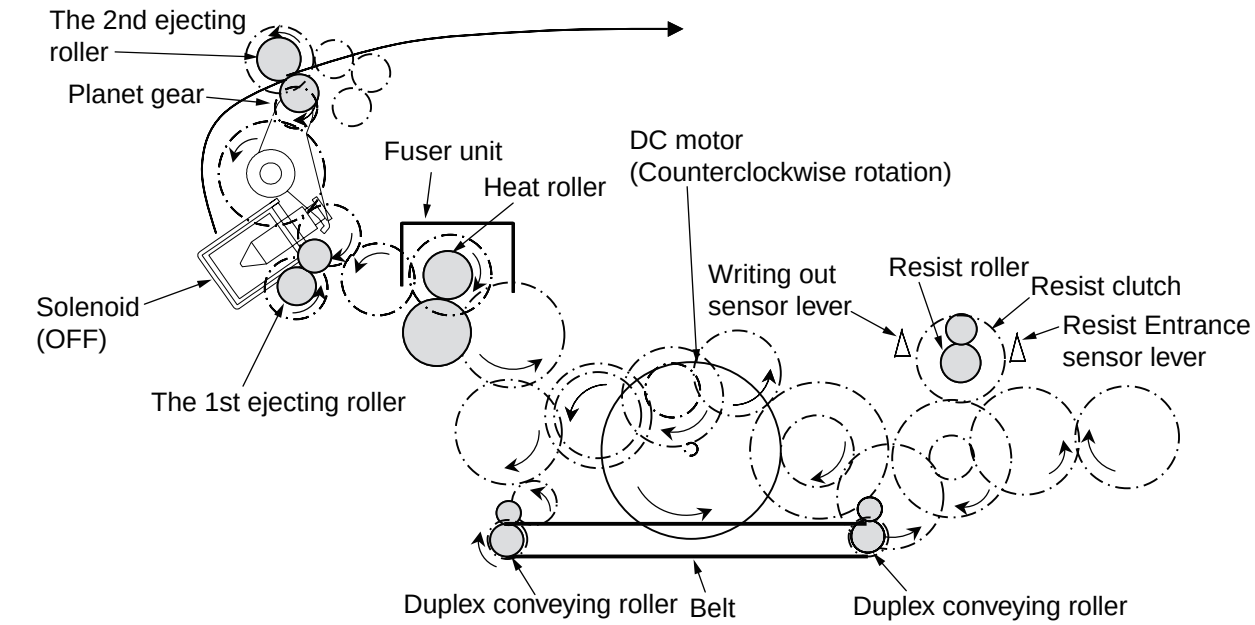
1. The fuser unit and eject roller is
2. Simultaneously the eject roller rotates, and then the paper is ejected.



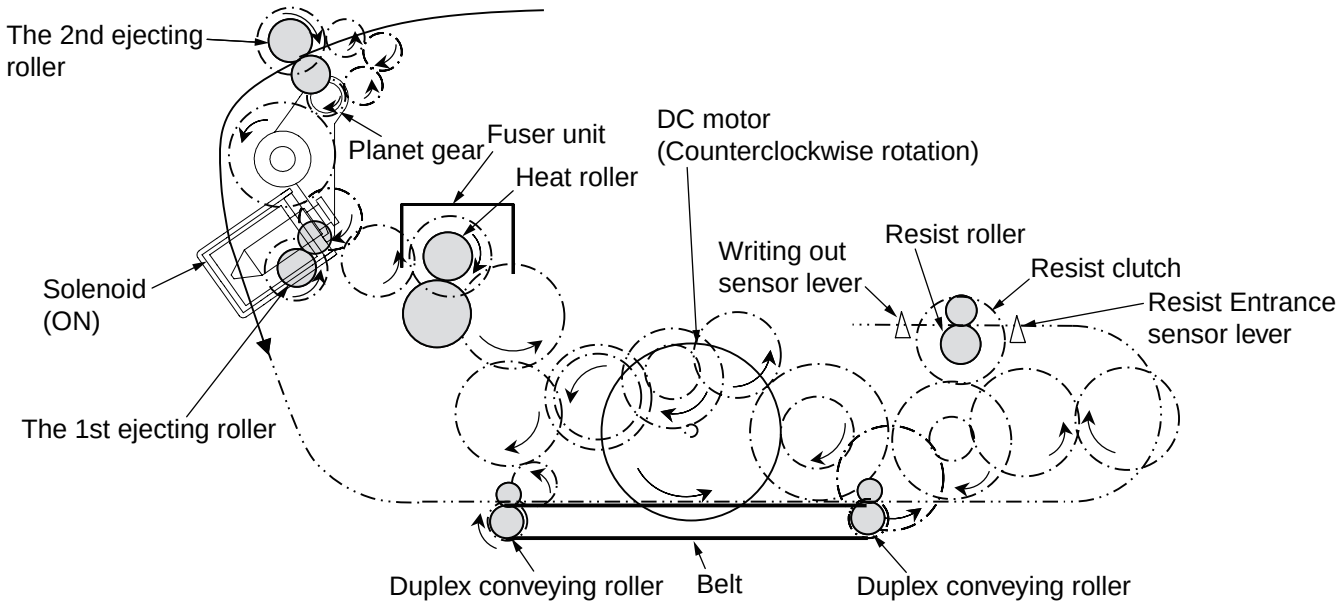
(4) Paper reversing and paper multi-feeding

1. TRemoving the first eject roller at the rear part of paper and set the solenoid as ON for a while, then the planet gear starts to move, the second eject roller starts inverse rotating (Counterclockwise rotation).
2. By the inverse rotation of the second eject roller the paper is inversely rotated and conveyed to Duplex.
3. Paper is conveyed by Duplex conveying roller.
4. After setting the entrance sensor lever as ON, paper bumps into the stopped resist roller, still a certain more amount of paper is conveyed. (This corrects the skew of paper.).
5. If set the Resist clutch as ON, paper is conveyed by Resist roller.

[Normal rotation]



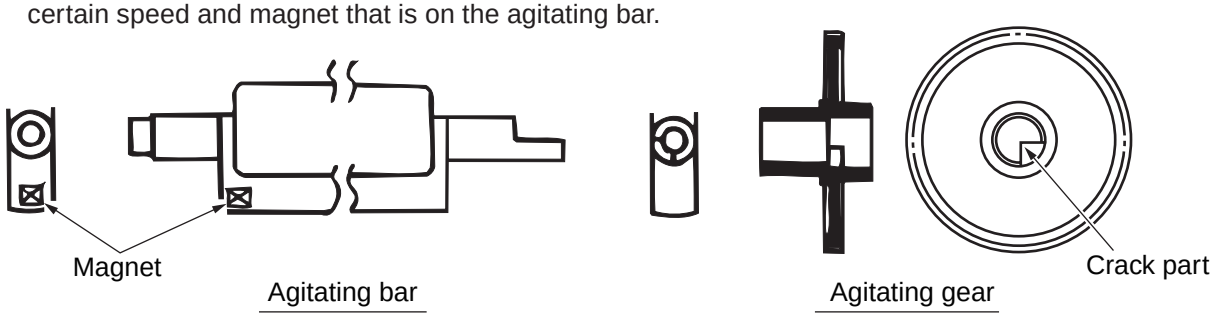
[Inverse rotation]



2.3 Toner entrance detection

- Equipment

  Toner entrance detecting equipment consists the agitating gear that agitating the agitating bar at a certain speed and magnet that is on the agitating bar.

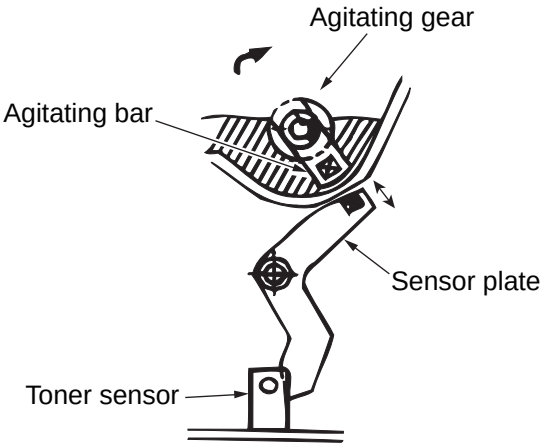


- Operation

  Detecting the toner low by monitoring the congruous time intervals between the magnet that is set on the sensor plate and the magnet attached on the agitating bar,

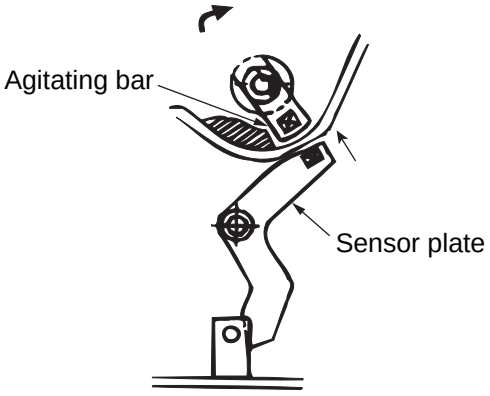
Operation in toner full status

- The crack part of agitating gear meshing with the projection portion of agitating bar, the agitating bar rotates in accordance with the rotating of gear.
- Even after the magnet part of the agitating Bar reaches the highest position, it still rotates at the same speed by the pressure of the agitating gear due to the toner resistance.

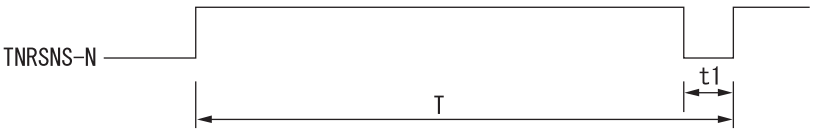


Operation in toner low status

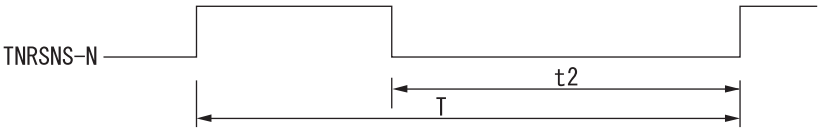
- When the magnet part of the agitating bar reaches the highest position, because there is no resistance from toner, the agitating bar drops earlier than the gear by the gravity itself, and stops by that status.
  For this reason, the time that the magnet of agitating Bar magnetic attracts the magnet of sensor plate becomes longer. The toner low status can be inspected by monitoring this time.



Toner full status



Toner low status t1〈 t2 t1,t2: Magnet attracting time



- Toner sensor alarm actuates if there is not any change on toner sensor.
- Toner sensor is not monitored while main (drum) motor is stopping.

3. Parts replacement

This section explains the replacement procedure of part, assembly, and unit in the working place. Disassembling procedure relating to reassembling is conducted conversely.

3.1 Preparation for parts replacement

(1) Be sure to unplug the AC cord and interface cable before starting to replace parts.

(a) Unplugging the AC cord by the following procedures.

i) Shut off the power switch of the printer. (“○”)

ii) Unplug the AC insert plug of AC cord from the AC socket.

iii) Remove the earth wire from AC socket.

iv) Unplug the AC cord and interface cable from printer.

⚠Warning	Risk of Electric Shock	⚡

There is a risk of electric shock during replacement of the low voltage power supply.

Use insulating gloves or avoid direct contact with any conducting part of the power supply, and caution should be exercised during replacement.

The capacitor may take one minute to complete discharge after the AC cord is unplugged. Also, there is a possibility that the capacitor doesn’t discharge because of a breakage of the PCB, etc., so remember the possibility of electric shock to avoid electric shock.

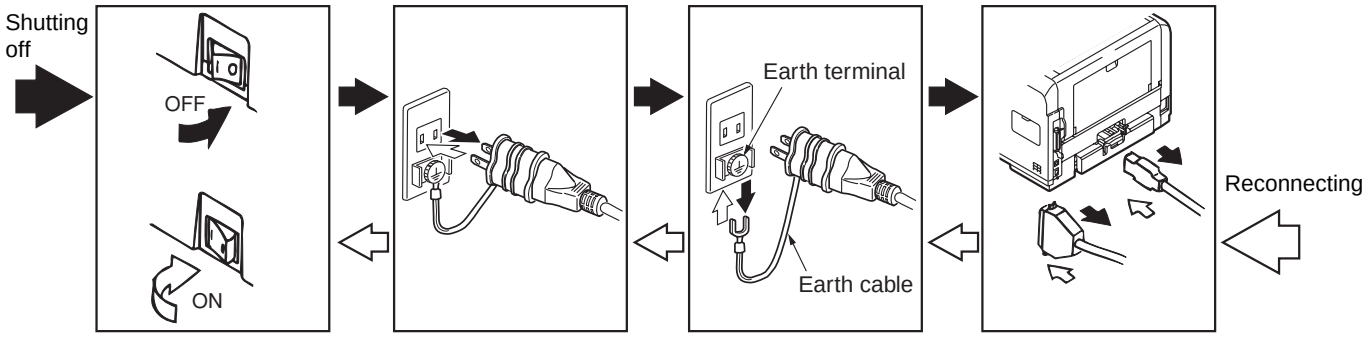
(b) Reconnecting the printer by the following procedures.

i) Connect the AC cord and interface cable to the printer.

ii) Connect earth wire to the AC socket.

iii) Connect the AC insert plug to the AC socket.

iv) Turn on the power switch of the printer. (“I”)



(2) Do not disassemble the printer in the case of normal operation.

(3) Do not disengage the part that there is not any necessary to touch. Disassembly should be the minimum.

(4) Be sure to use the specified maintenance tools.

(5) Be sure to temporarily install the small part such as screw, collar, and so on at its original position during disassembling because it is easy to be lost.

(6) Do not use the gloves that is easy to occur electrostatic while dealing with IC such as micro-sensor, ROM, RAM, etc. and PCB.

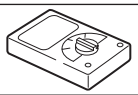
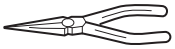
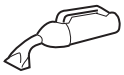
(7) Do not put the print circuit board on the equipment or on the floor directly.

(8) Do not put the Print Circuit Board on the printer of on the floor directly.

[Maintenance tools]

The necessary tools for replacing the print circuit board, assembly, and unit is shown as graph 3-1.

Graph 3-1 Maintenance tools

No.	Maintenance tools		Quantity	Application	Remark
1		No.2-200⊕Magnetic driver	1	3~5mm Screw	
2		No.3-100 Driver	1		
3		No.5-200 Driver	1		
4		Digital multi-meter	1		
5		Pliers	1		
6		Handy cleaner	1		Refer to the following Note!
7		E ring pliers	1	For E ring removing	

Note! Use vacuum by the type that applying to toner. It may cause fire if use normal vacuum.

3.2 Parts layout

This section explains the main parts layout of the equipment.

B410d/B410dn

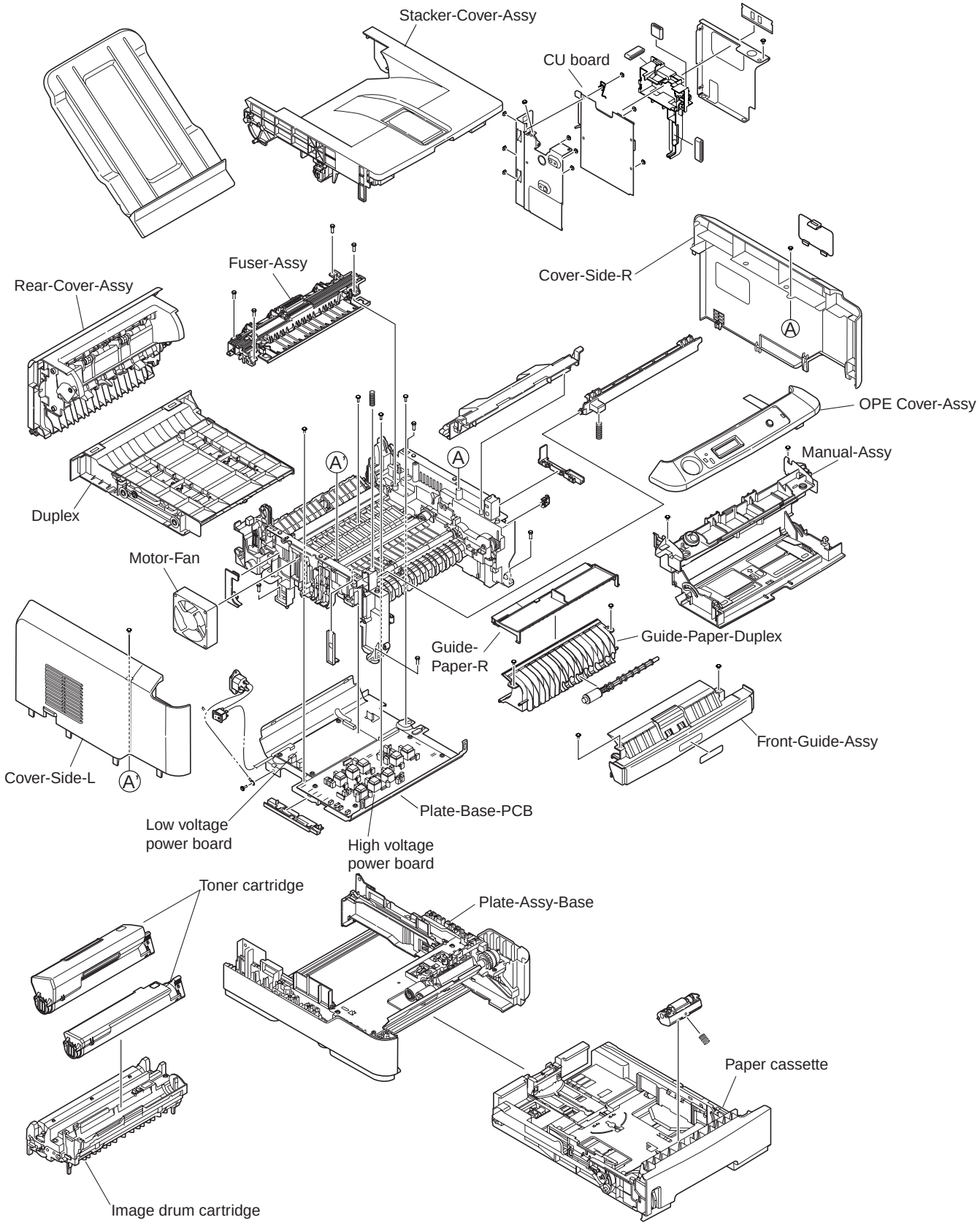


Figure 3-1

B430d/B430dn

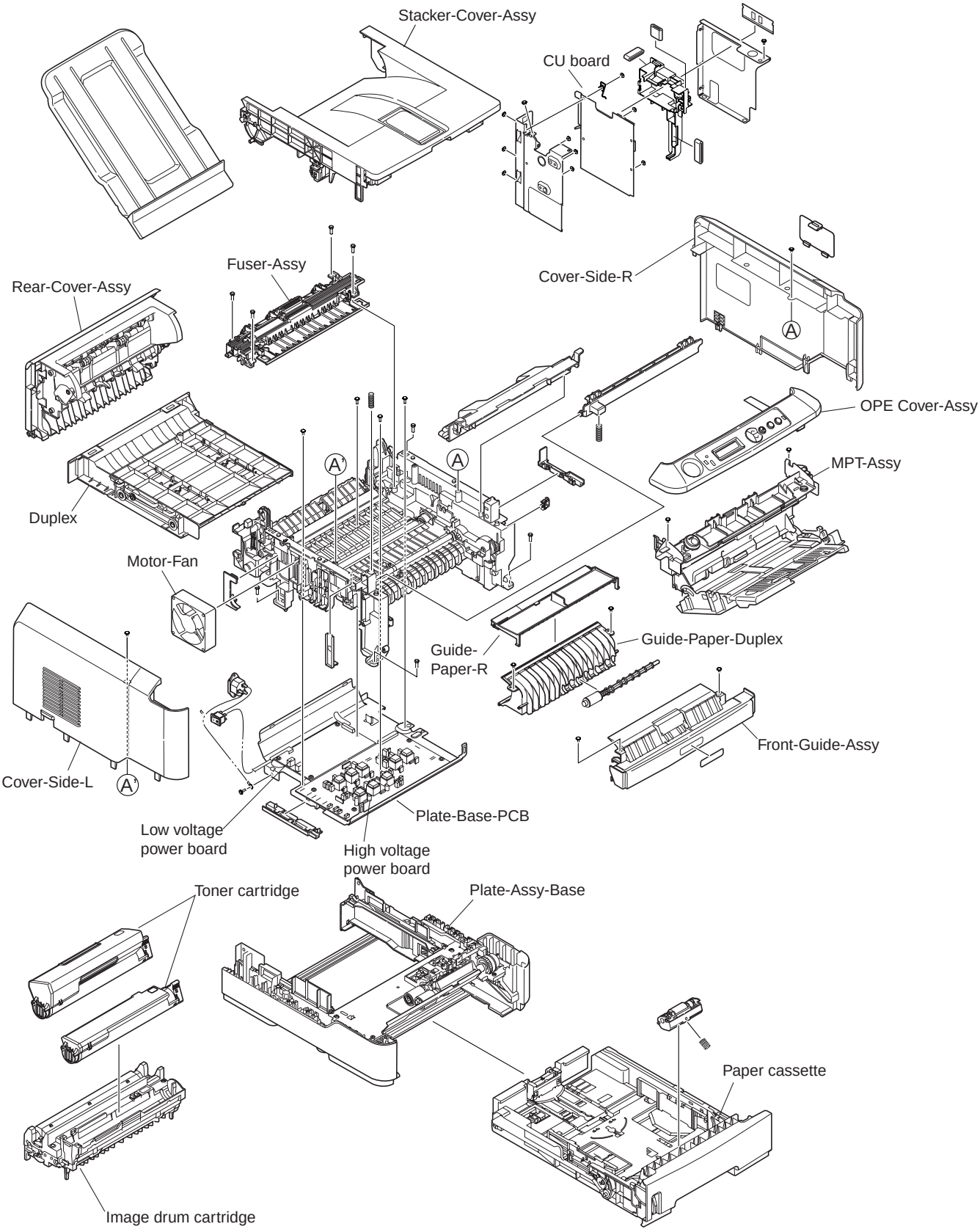


Figure 3-2

B420dn/B440dn

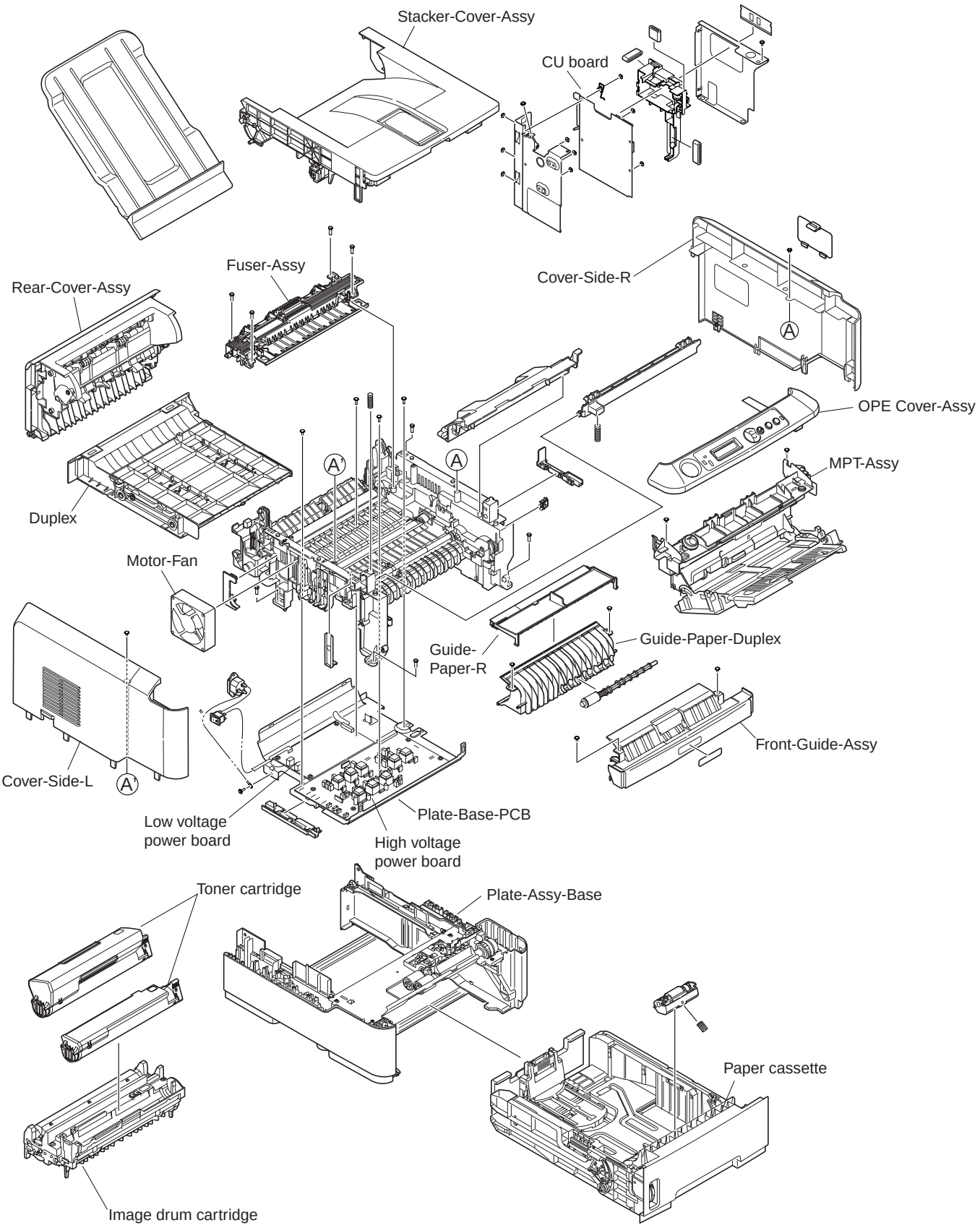


Figure 3-3

[Base unit]

B410d/B410dn/B430d/B430dn

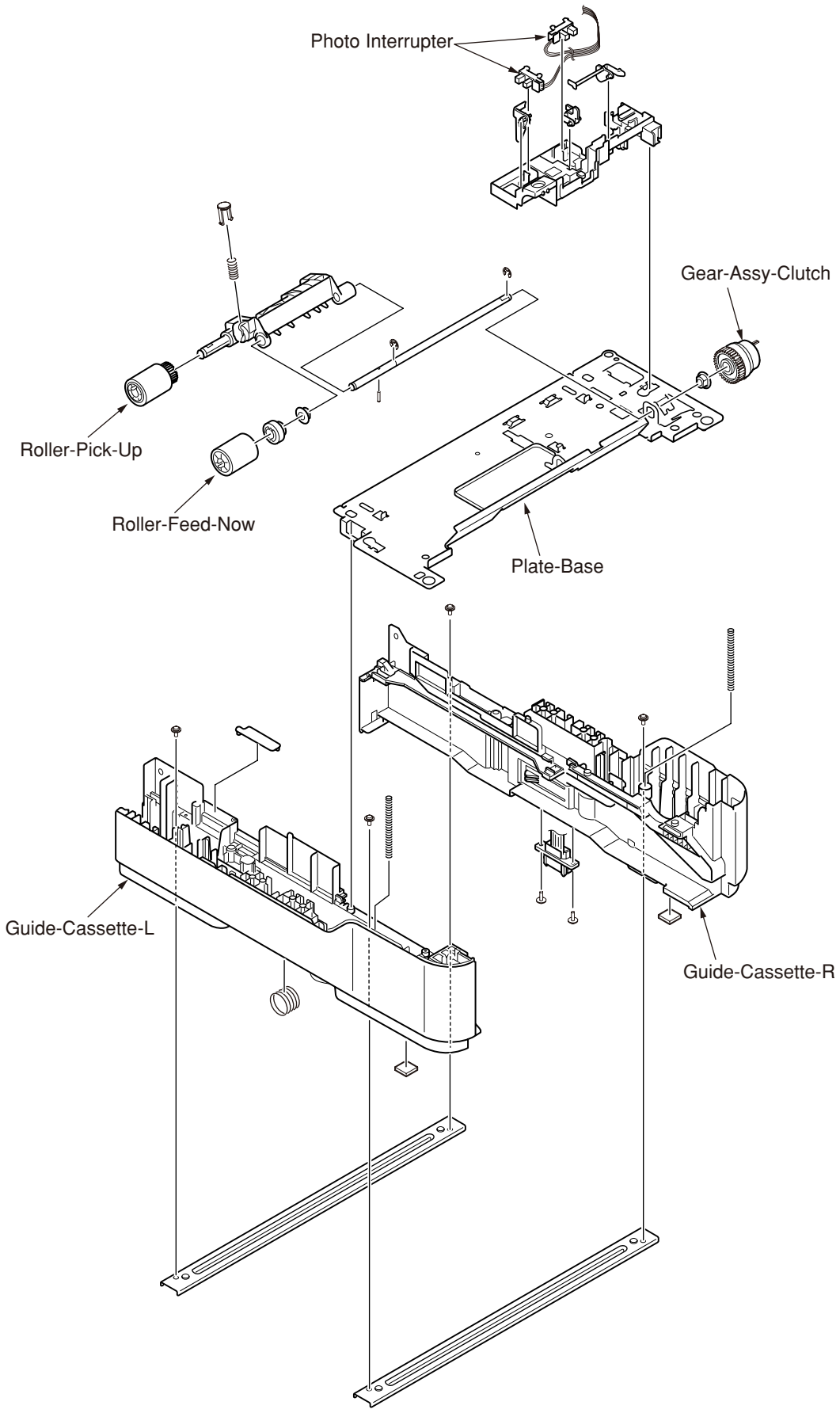


Figure 3-4

[Base unit]

B420dn/B440dn

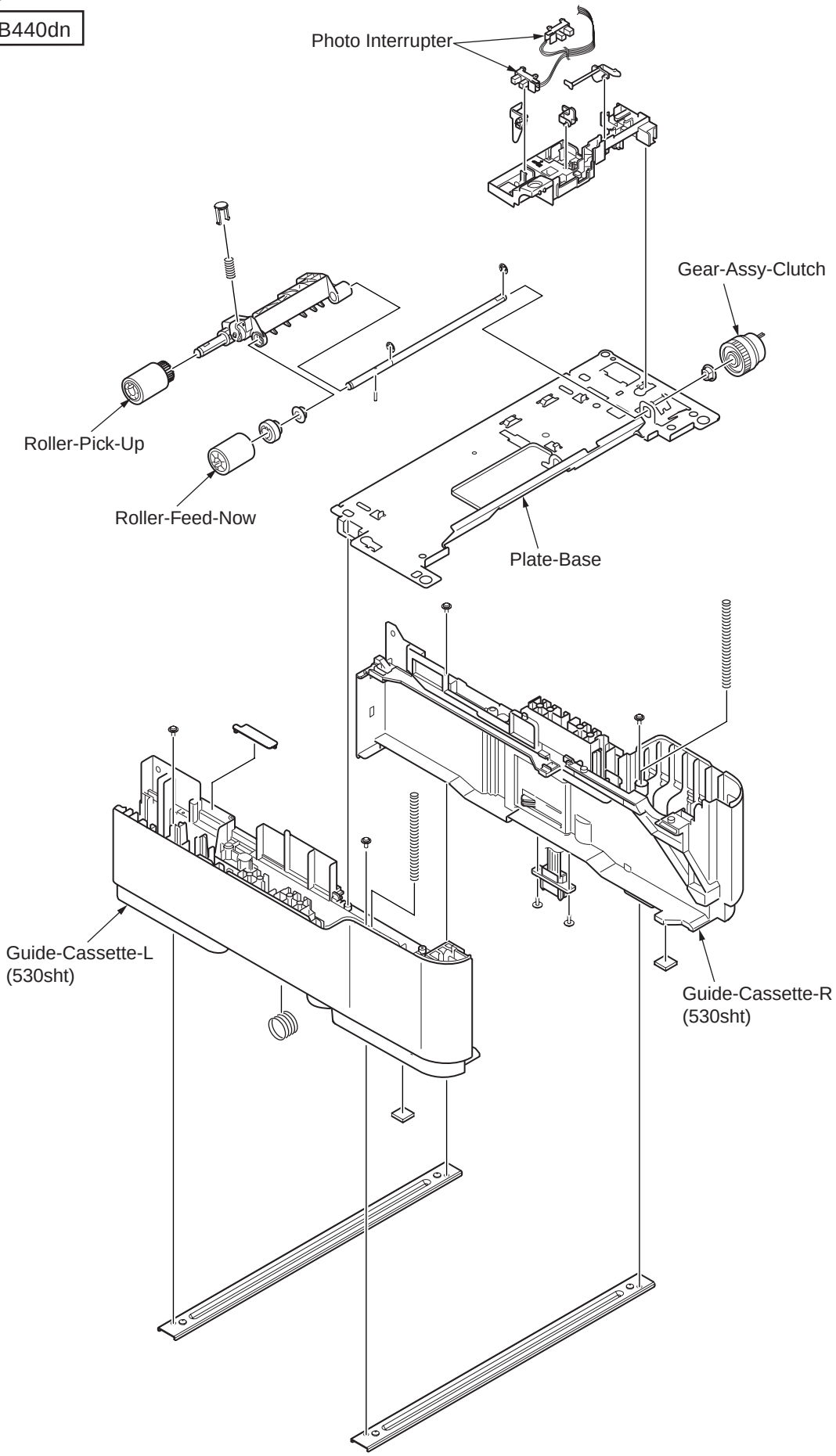


Figure 3-5

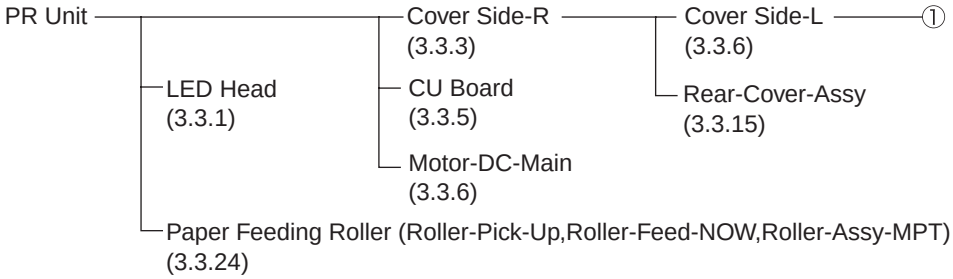
3.3 Parts replacement method

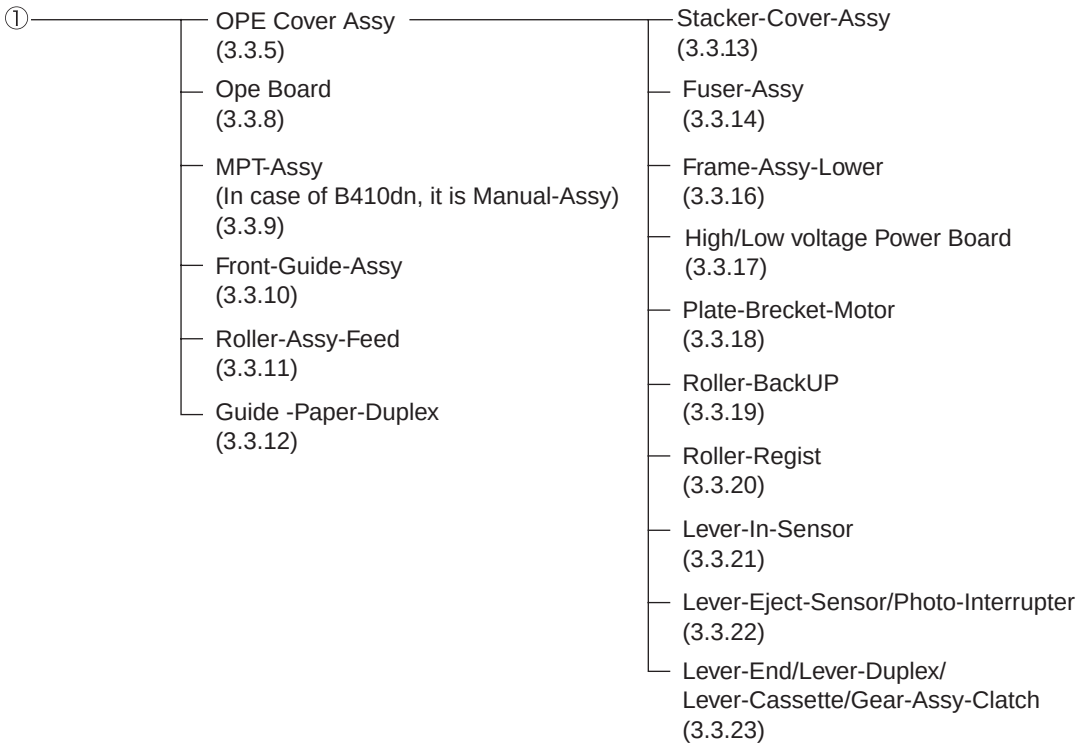
This section explains the replacement method of the parts and assemblies that are shown in the following disassembling diagram.
About the parts replacement procedure, the parts that are shown by parts number using white number in the ● are the RSPL parts.
The explaining diagram of parts replacement procedure is B430dn.

Replace part after performing the following operation.

(1) Unplug the AC power cord from the main unit inlet by the disconnected status of power switch.

(2) Unplug the interface cable from the main unit.

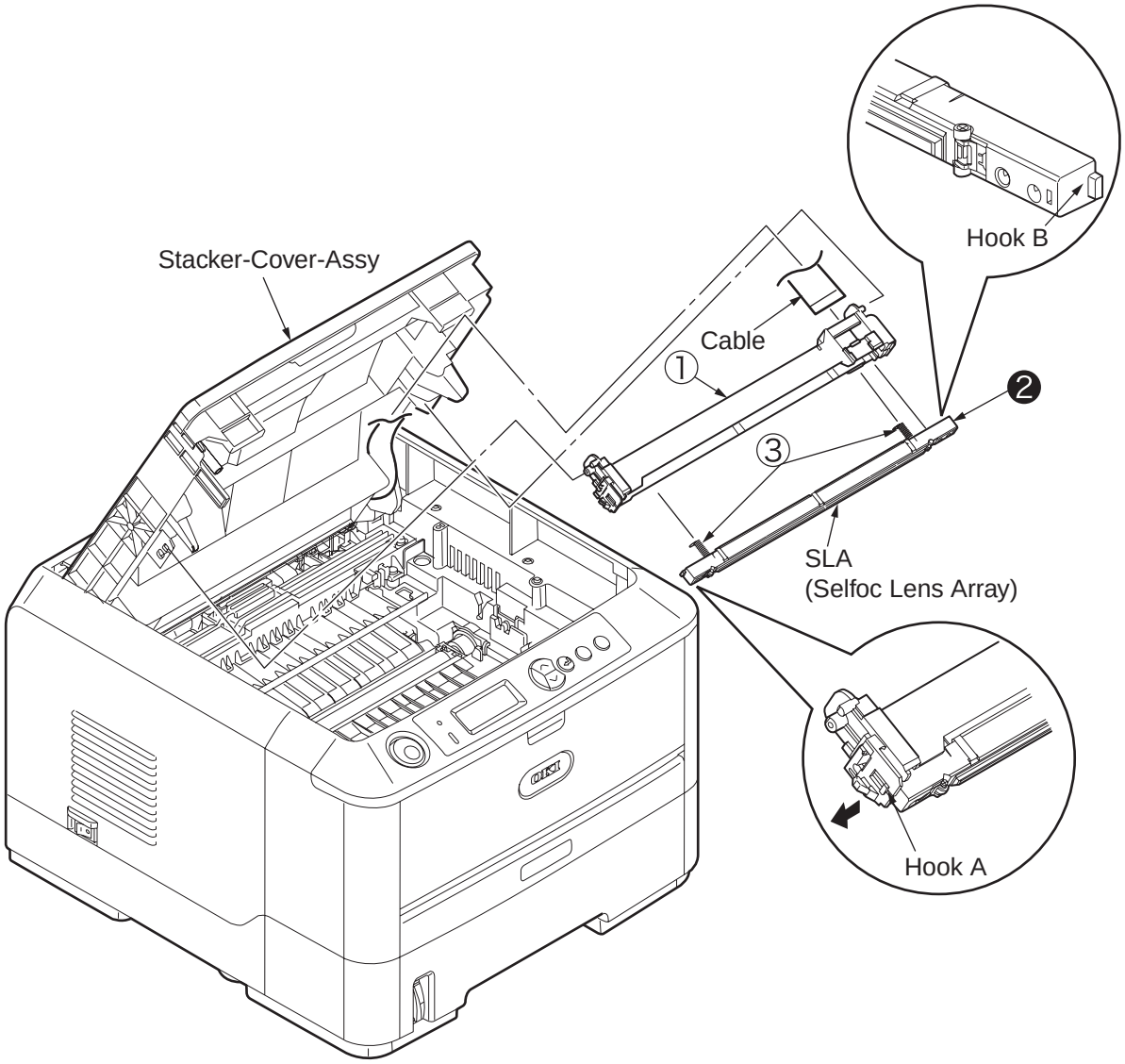




3.3.1 LED Head

(1) Open the Stacker-Cover-Assy
(2) Remove Holder-Head ①.
(3) Firstly open Hook A by narrow direction and then remove it. Secondly remove Hook B then remove LED Assy ❷. (At this moment, the 2 springs ③ can be also removed jointly.)
(4) Remove cable from the connector of LED Assy ❷.
(5) Installing is performed by the reverse procedure with removing.

Note! Beware of not to touch or press the SLA parts of LED Head directly.



3.3.2 Roller-Transfer

(1) As the power switch shut off, unplug the AC power cord from the inlet of main unit.

(2) Open the Stack-Cover –Assy

(3) Remove latches in the 2 places of Gear-TR ③ and Bearing-TR ❶ on the conversing side. (Do not add any unnecessary pressure while removing the latch.)

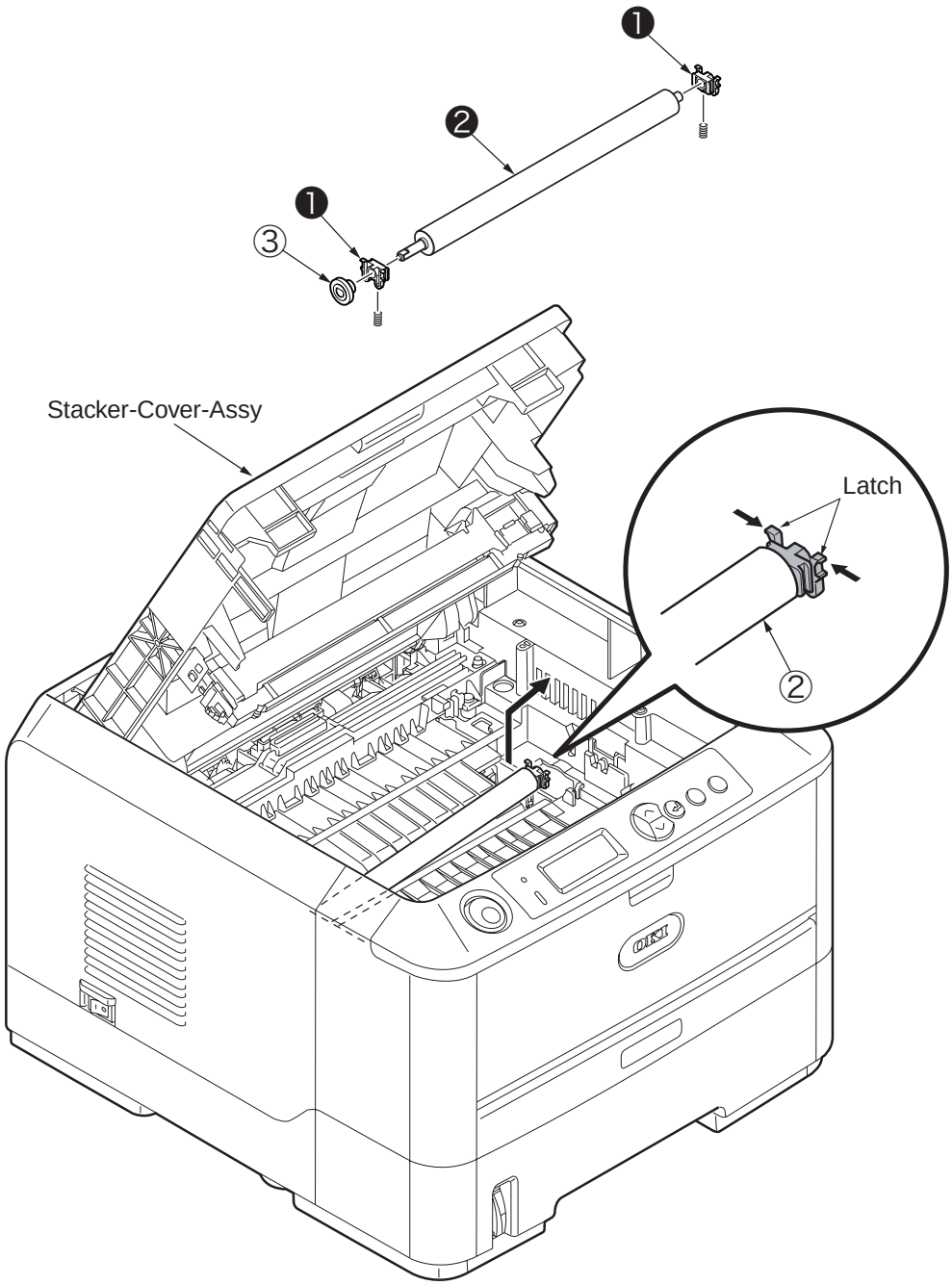
(4) Slightly slide the Roller-transfer ❷ to the right side and remove the post on the top of gear from the contact of Frame-Assy-Lower. Remove the latches on the 2 places of Gearing-TR ❶ of Gear.

(5) Hold the Bearing-TR ❶ on the both side, and then lift up the Roller-Transfer ❷. (At this moment, Gear-TR ③ is also removed.)

(6) Installing is performed by the inverse procedure with removing.

(Note on removing / installing)

1. Beware of not to touch the DC motor inattentively (Do not rotate motor).
2. While installing, pay attention to the up-and-down direction of Bearing-TR ❶.
3. Operating carefully, not to touch Roller-Transfer ❷ surface.

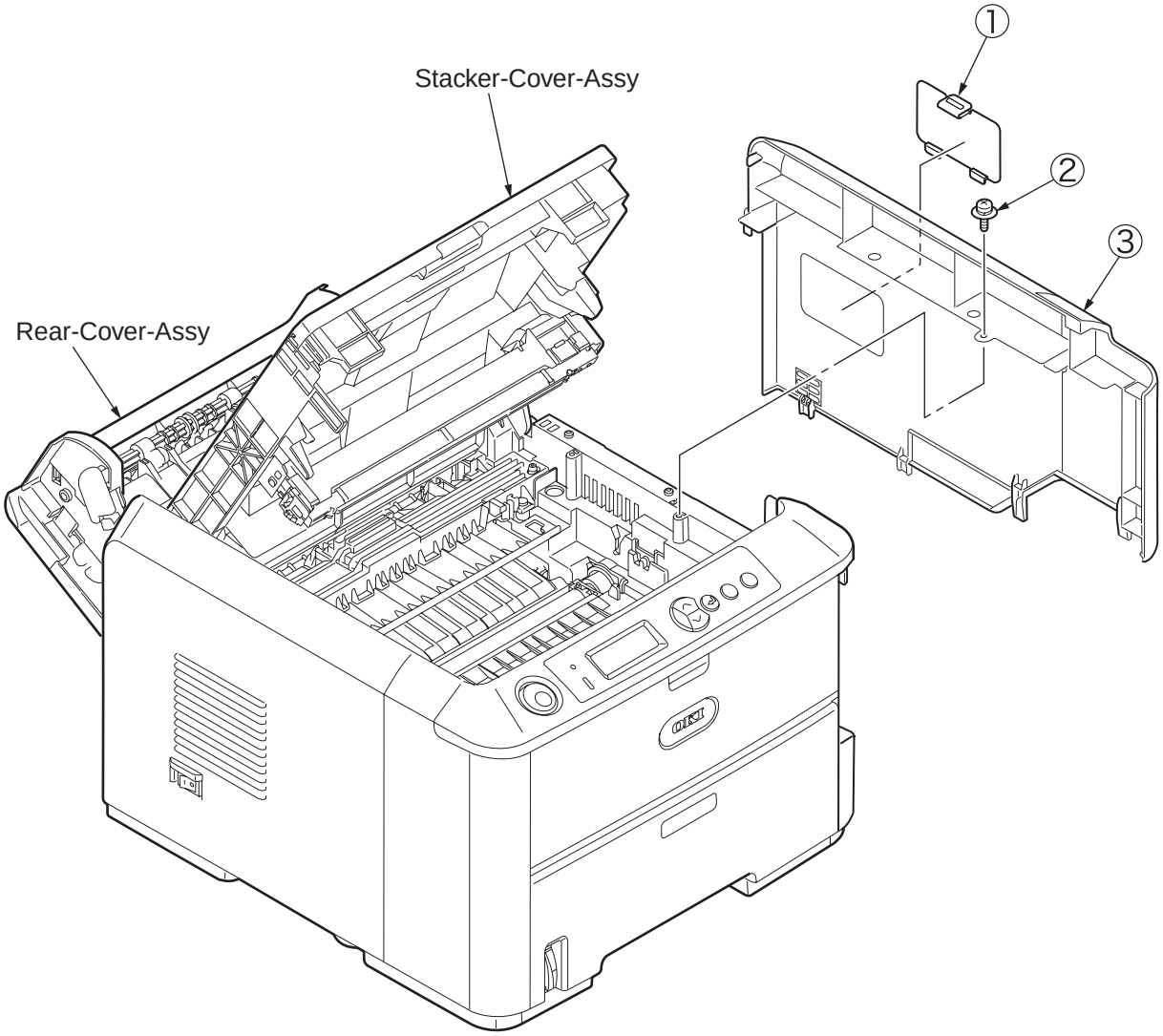


3.3.3 Cover-Side-R

(1) As the power switch shut off, unplug the AC power cord from the inlet of main unit.
(2) Unplug the interface cable from the main unit.
(3) Open the Rear-Cover-Assy.
(4) Open the Stacker-Cover-Assy.
(5) Take out the image drum cartridge.
(6) Remove the Cover-Access ①.
(7) Remove the screw (Black) ②. Remove the Cover-Side-R ③.
(8) Installing is performed by the inverse procedure with removing.

(Note on removing / installing)

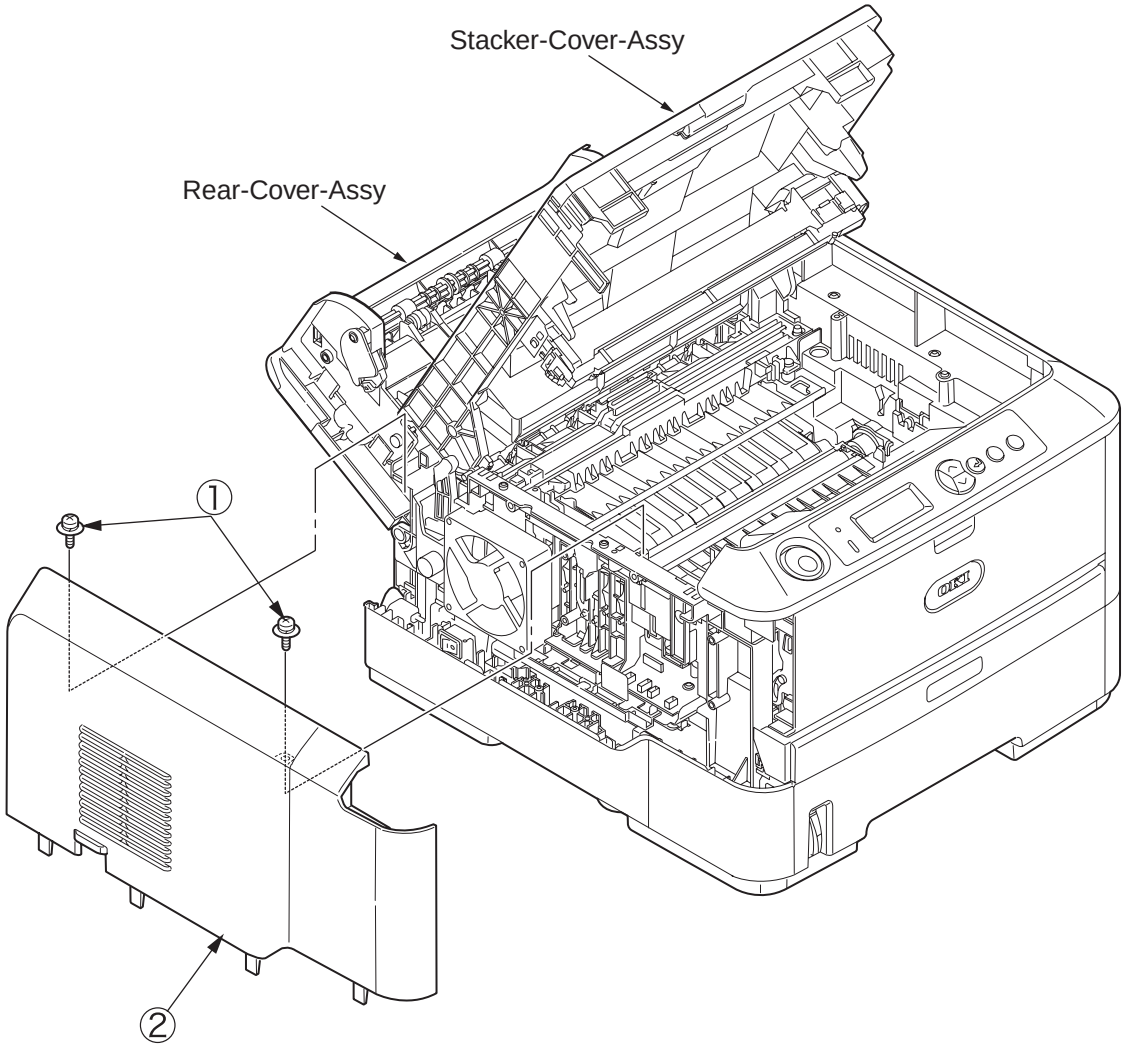
1. Beware of not to touch the DC motor inattentively (Do not rotate motor).



3.3.4 Cover-Side-L

(1) As the power switch shut off, unplug the AC power cord from the inlet of main unit.
(2) Unplug the interface cable from the main unit.
(3) Open the Rear-Cover-Assy.
(4) Open the Stacker-Cover-Assy.
(5) Take out the image drum cartridge.
(6) Remove the 2 screws (Black) ①. Remove Cover-Side-L ②.
(7) Installing is performed by the inverse procedure with removing.

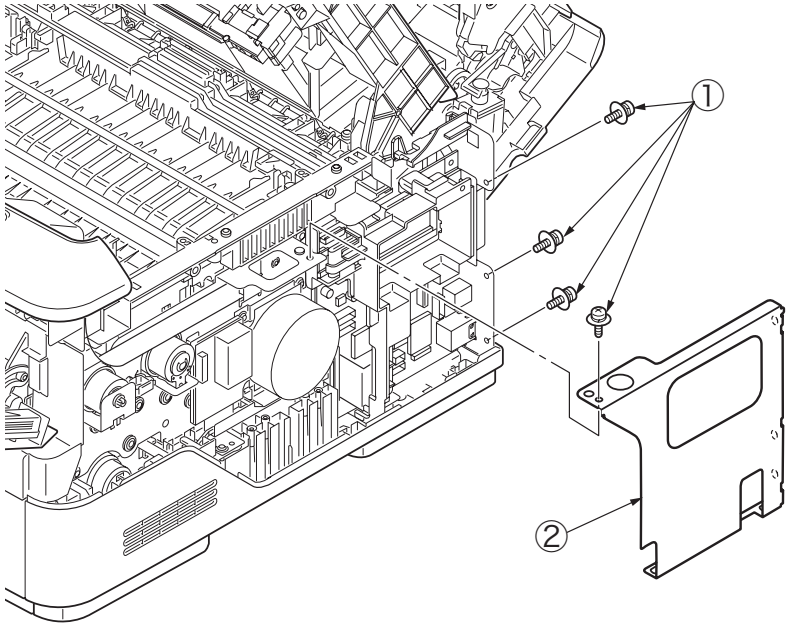
Note! Attach the Label Motor-Fan on the outside that is obviously to be seen.



3.3.5 CU Board

(1) Remove the Cover-Side-R. (Refer to 3.3.3)

(2) Remove the 4 pieces of screws (Silver) ①. Remove the Plate-Cover-Shield-CU ②.



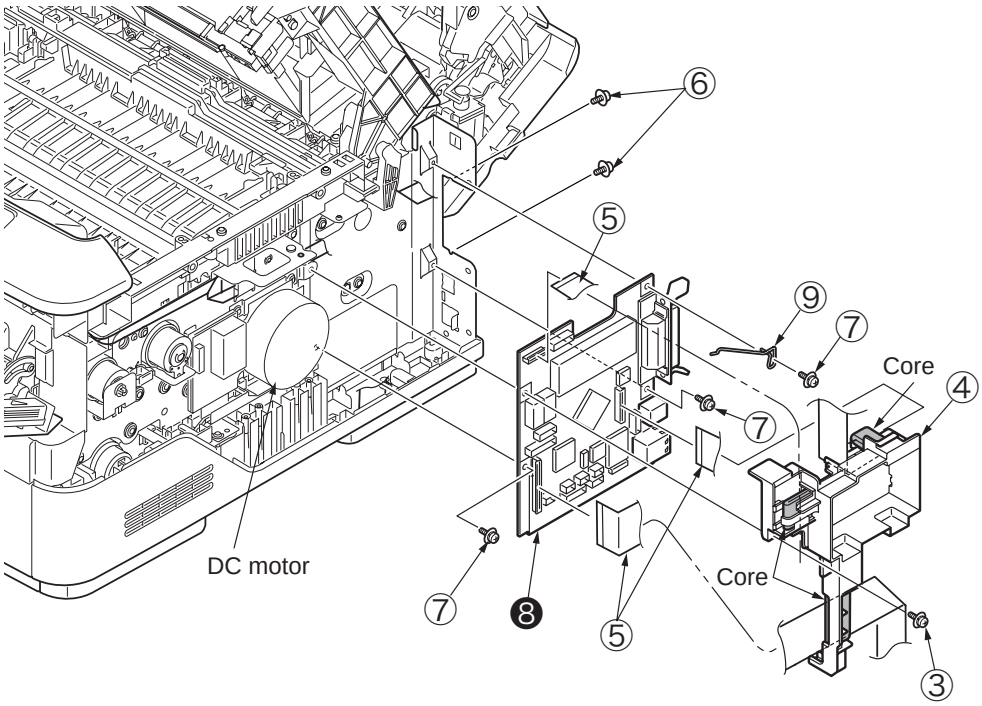
(3) Remove the 1 piece of big screw (Silver) ③. Remove the Holder-Core ④. In the meantime remove the cable (with core) ⑤ together.

(4) Remove the 2 pieces of small screws (Silver) ⑥, 3 pieces of big screws (Silver) ⑦, and cable connector from the CU board ❽. Remove the Spring-FG-Solenoid ⑨ and CU board ❽.

(5) Installing is performed by the inverse procedure with removing.

(Note on removing / installing)

1. Beware of not to touch the DC motor inattentively (Do not rotate motor).
2. Beware of not to tuck down the cable while installing the Plate-Cover-Shield-CU ②.
3. The screw ③ is longer than the screw ⑦, so beware of confusing them.

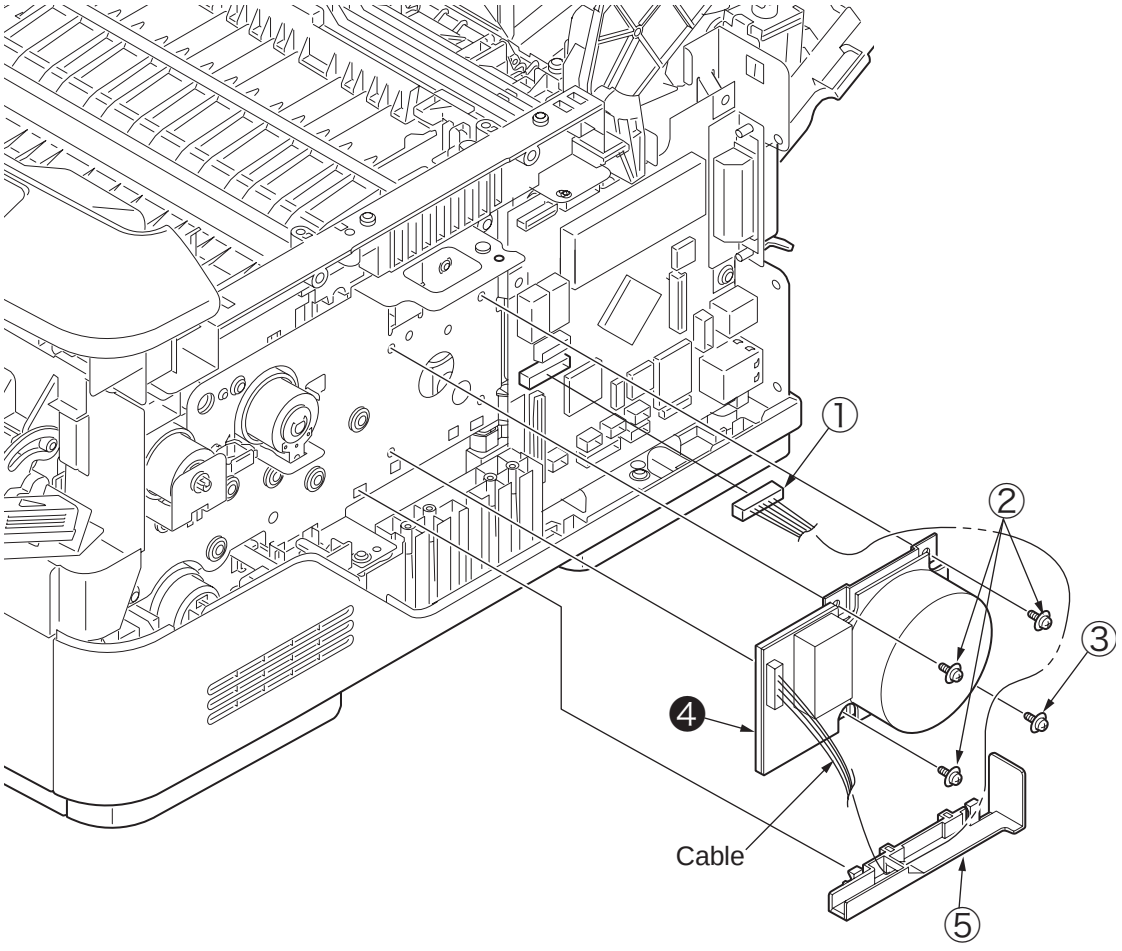


3.3.6 Motor-DC-Main

(1) Remove the Cover-Side-R. (Refer to 3.3.3)
(2) Remove the Plate-Cover-Shield-CU. (Refer to 3.3.5(2))
(3) Remove the connector ① of Motor-DC-Main from CU board.
(4) Cut the TY-RAP that is bundling the cable of Motor-DC-Main and the cable of Resist clutch.
(5) Remove the 3 pieces of screws (Silver) ② and the 1 piece of screw (Black) ③.
(6) Remove the Motor-DC-Main ❹. Unplug the cable from the Piece-Guide ⑤.
(7) Installing procedure is performed by the opposite order with removing. Bundle the cable of Motor-DC-Main and the cable of Resistor clutch by TY-RAP.

(Note on removing / installing)

1. Beware of not to touch the DC motor inattentively (Do not rotate motor).

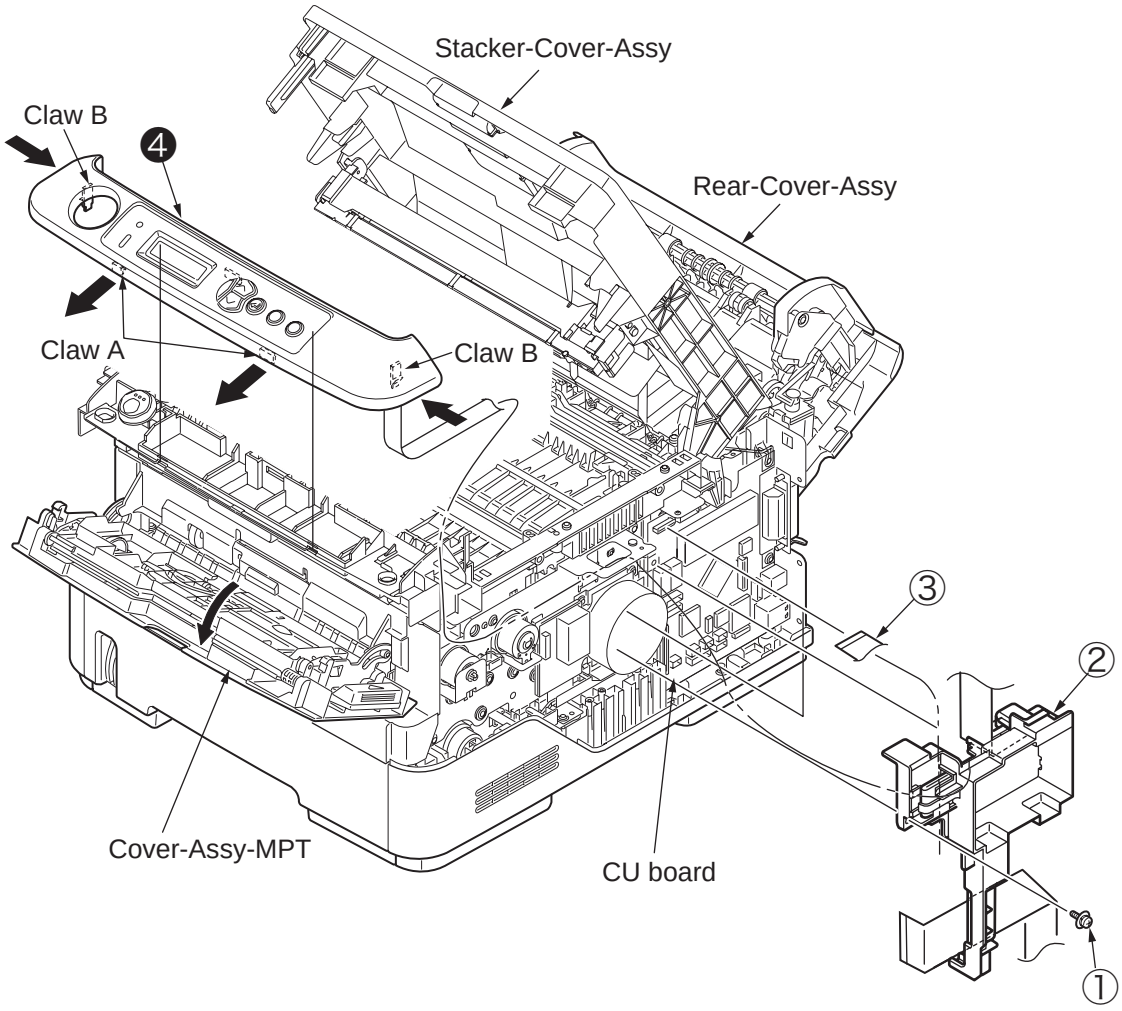


3.3.7 OPE Cover-Assy

(1) Open the Rear-Cover-Assy.
(2) Open the Stacker-Cover-Assy.
(3) Remove the Cover-Side-R and Cover –Side-L. (Refer to 3.3.3/3.3.4)
(4) Remove the Plate-Cover-Shield-CU. (Refer to 3.3.5(2))
(5) Remove the screw (Silver) ①. Remove the Holder-Core ②.
(6) Remove the FFC cable ③ from the CU board.
(7) Open the Cover-Assy-MPT.
(8) Pull Claw A by the arrow direction. Remove the clamp by pushing Claw B as the arrow direction. Remove the OPE Cover-Assy ❹.
(9) Installing is performed by the reverse procedure with removing.

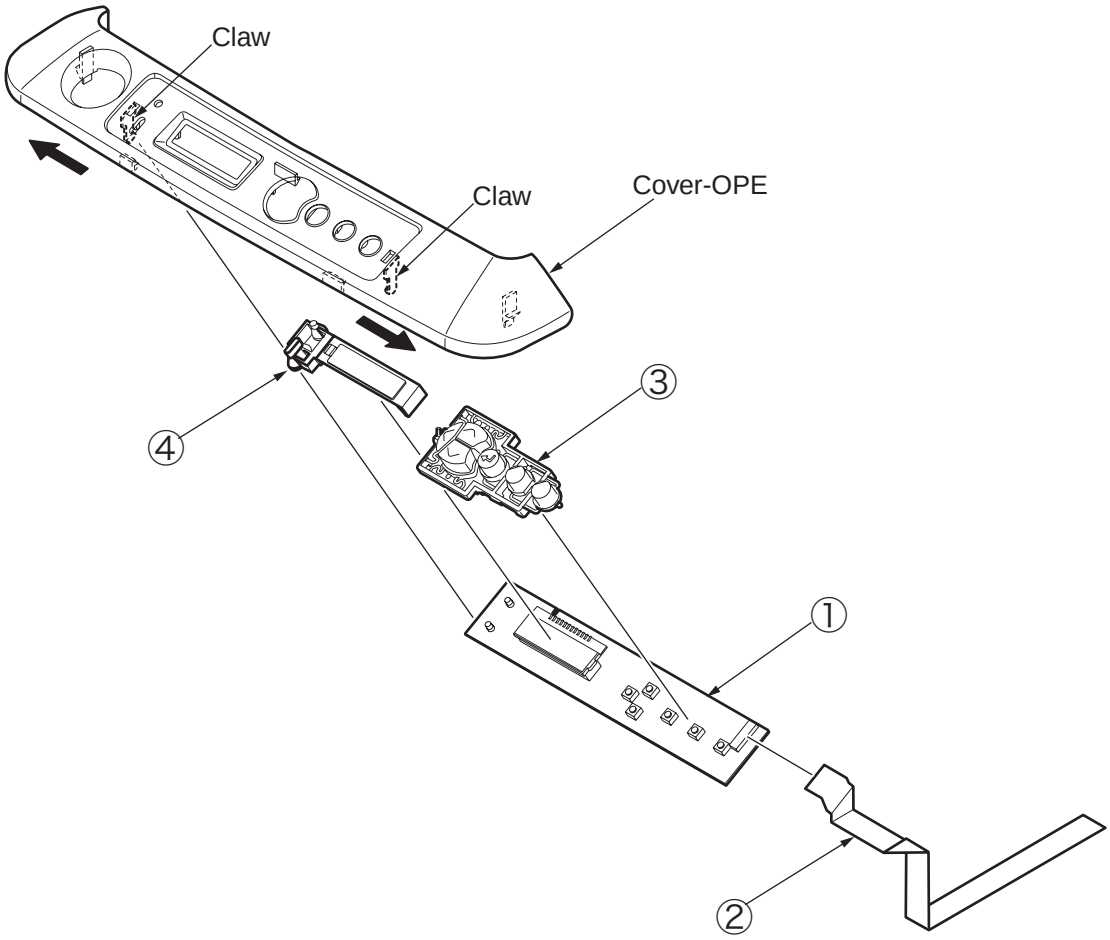
(Note on removing / installing)

1. Beware of not to touch the DC motor inattentively (Do not rotate motor).



3.3.8 Ope-Board

(1) Remove OPE Cover-Assy. (Refer to 3.3.7)
(2) Remove Ope-Board ① from Cover-OPE by pulling the claw as the arrow direction.
(3) Unplug FFC cable ② from Ope-Board ①.
(4) Remove Button-KEY ③ and Lens-LCD ④ from Ope-Board ①.
(5) Installing is performed by the reverse procedure with removing.



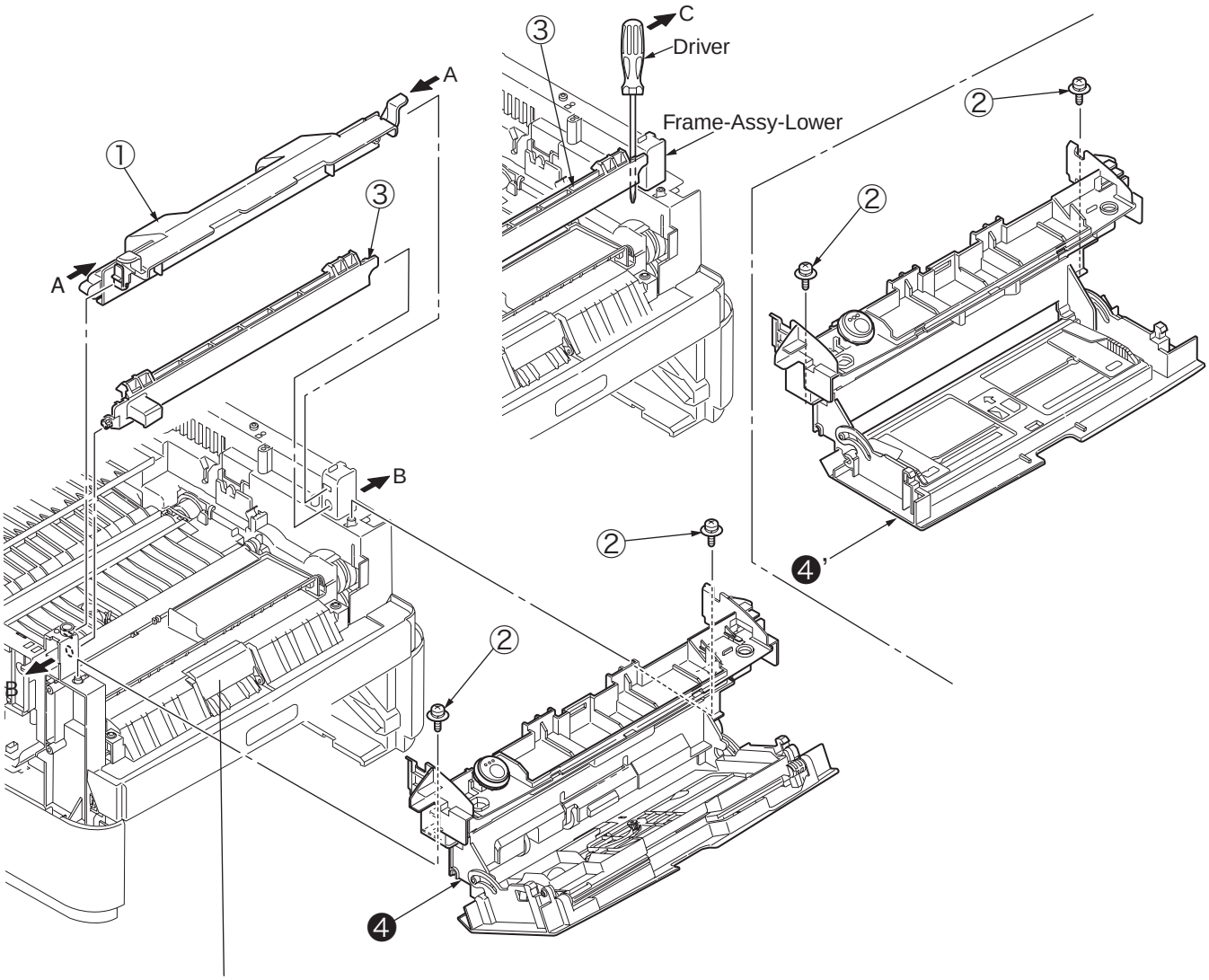
3.3.9 MPT-Assy (In case of B410dn, it is Manual-Assy)

(1) Open Rear-Cover-Assy.
(2) Open Stacker-Cover-Assy.
(3) Remove Cover-Side-R and Cover-Side-L. (Refer to 3.3.3/3.3.4)
(4) Remove OPE Cover-Assy. (Refer to 3.3.7)
(5) Remove the clamp of claw by pushing by arrow A direction, and then remove Cover-Lever-Lock ①.
(6) Remove the 2 screws (Black) ②.
(7) Open the Frame-Assy-Lower by arrow B direction, and then remove Lever-Lock-Top ③.
(8) Holding up MPT-Assy ❹ (Manual-Assy ❹) and remove it.
(9) Installing is performed by the inverse procedure with removing.

Note! While removing the Lever-Lock-Top ③, it is easy to remove it by inserting the driver between the Frame-Assy-Lower and Lever-Lock-Top ③ and press the driver by Arrow C direction.

(Note on removing / installing)

1. Beware of not to touch the DC motor inattentively (Do not rotate motor).



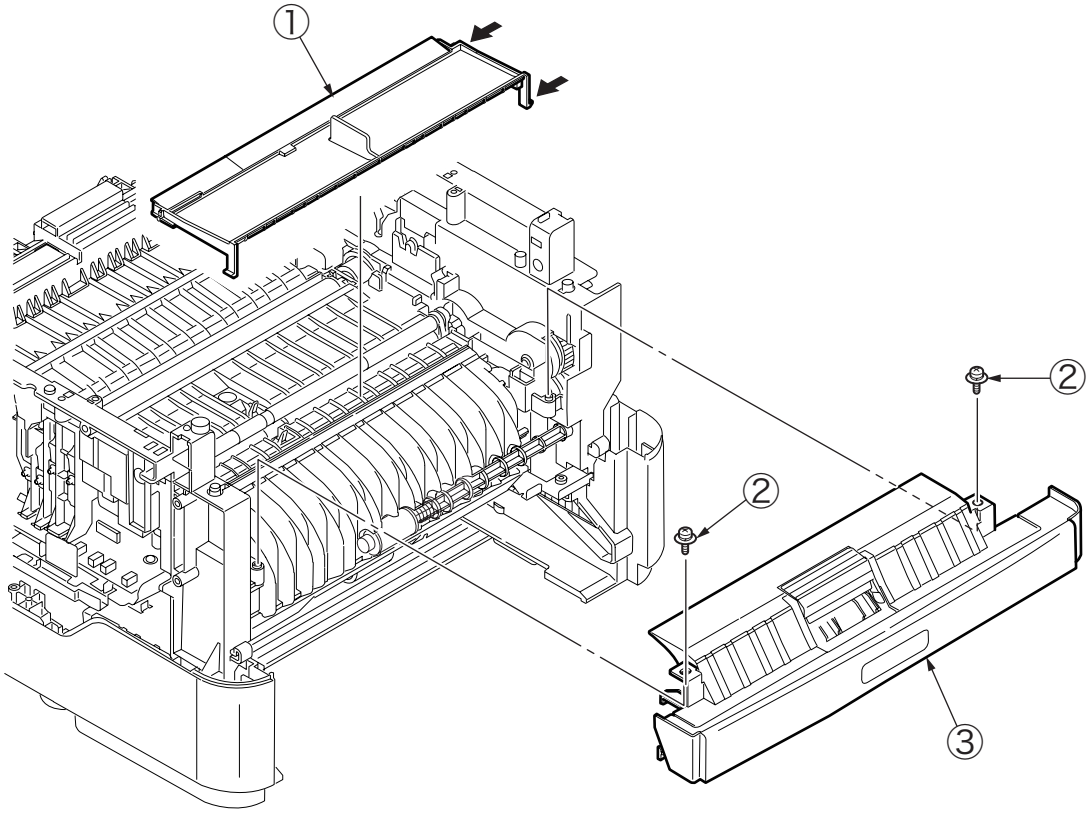
Pay attention not to let Separating- Pad- Assy pop out to your front side while installing MPT-Assy.

3.3.10 Front-Guide-Assy

(1) Open Rear-Cover-Assy.
(2) Open Stacker-Cover-Assy.
(3) Remove Cover-Side-R and Cover-Side-L. (Refer to 3.3.3/3.3.4)
(4) Remove OPE Cover-Assy. (Refer to 3.3.7)
(5) Remove MPT-Assy. (Refer to 3.3.9)
(6) Remove the clamp of claw by pushing by arrow direction, and then remove Cover-Paper-R ①.
(7) Remove the 2 screws (Black) ②. Remove Front-Guide-Assy ③.
(8) Installing is performed by the inverse procedure with removing.

(Note on removing / installing)

1. Beware of not to touch the DC motor inattentively (Do not rotate motor).

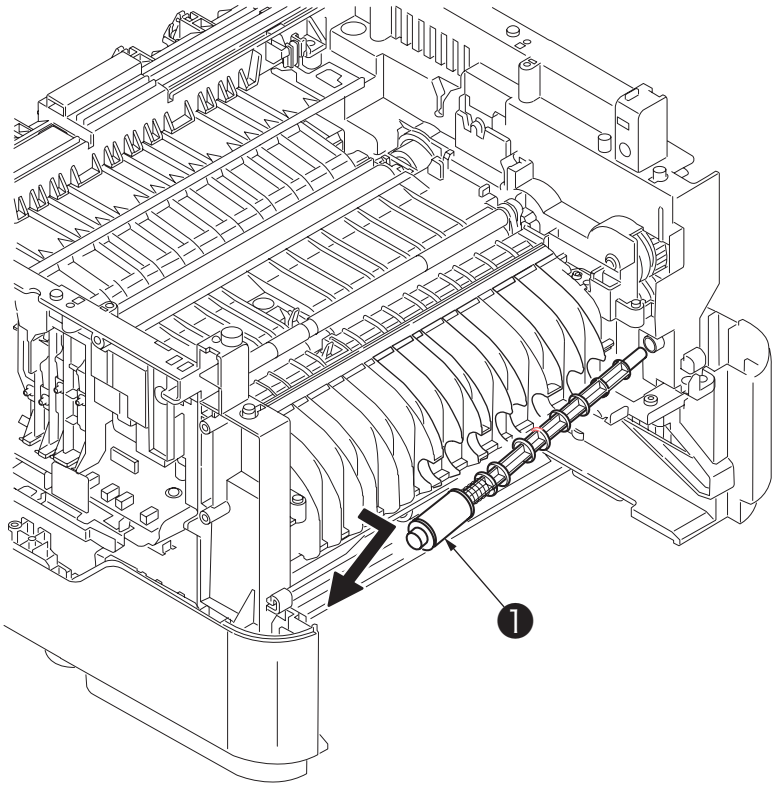


3.3.11 Roller-Assy-Feed

(1) Open Rear-Cover-Assy.
(2) Open Stacker-Cover-Assy.
(3) Remove Cover-Side-R and Cover-Side-L. (Refer to 3.3.3/3.3.4)
(4) Remove OPE Cover-Assy. (Refer to 3.3.7)
(5) Remove MPT-Assy. (Refer to 3.3.9)
(6) Remove Guide-Assy-Front. (Refer to 3.3.10)
(7) Remove Roller-Assy-Feed ❶ by arrow direction.
(8) Installing is performed by the inverse procedure with removing.

(Note on removing / installing)

1. Beware of not to touch the DC motor inattentively (Do not rotate motor).

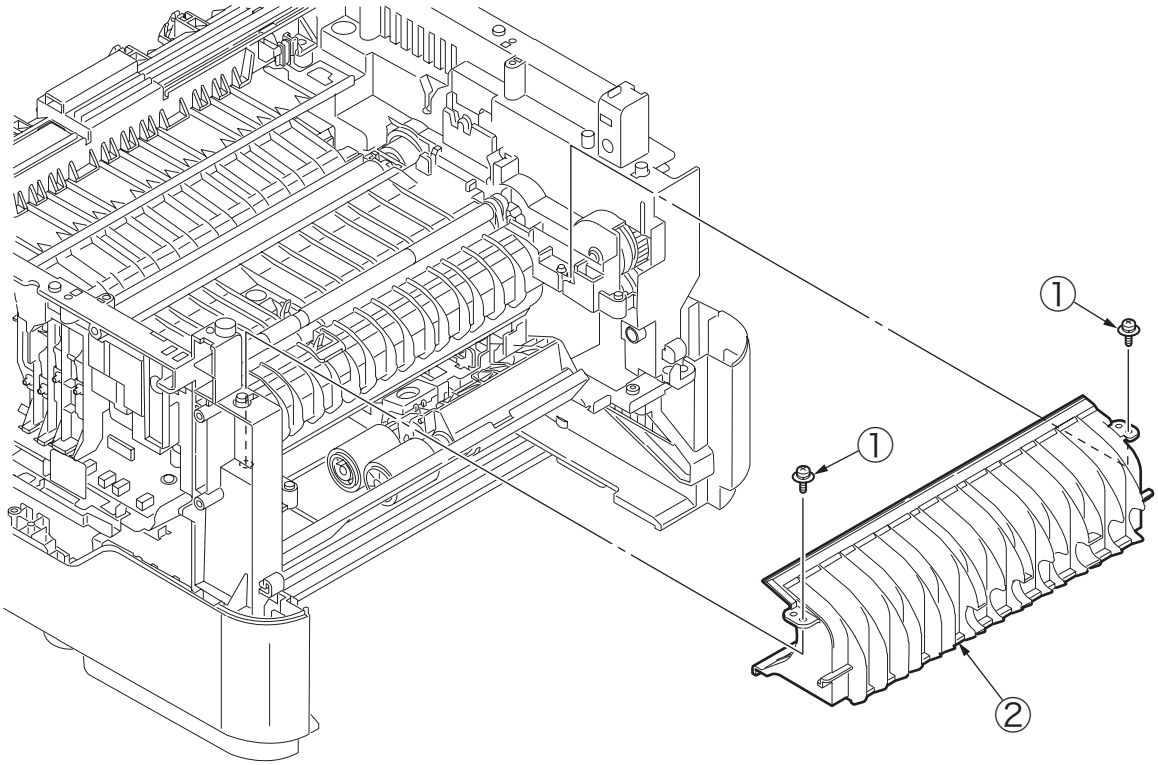


3.3.12 Guide-Paper-Duplex

(1) Open the Rear-Cover-Assy.
(2) Open the Stacker-Cover-Assy.
(3) Remove Cover-Side-R and Cover-Side-L. (Refer to 3.3.3/3.3.4)
(4) Remove OPE Cover-Assy. (Refer to 3.3.7)
(5) Remove MPT-Assy. (Refer to 3.3.9)
(6) Remove Front-Guide-Assy. (Refer to 3.3.10)
(7) Remove Roller-Assy-Feed. (Refer to 3.3.11)
(8) Remove Duplex-Assy.
(9) Remove the 2 screws (Black) ①. Remove Guide-Paper-Duplex ②.
(10) Installing is performed by the reverse procedure with removing.

(Note on removing / installing)

1. Beware of not to touch the DC motor inattentively (Do not rotate motor).

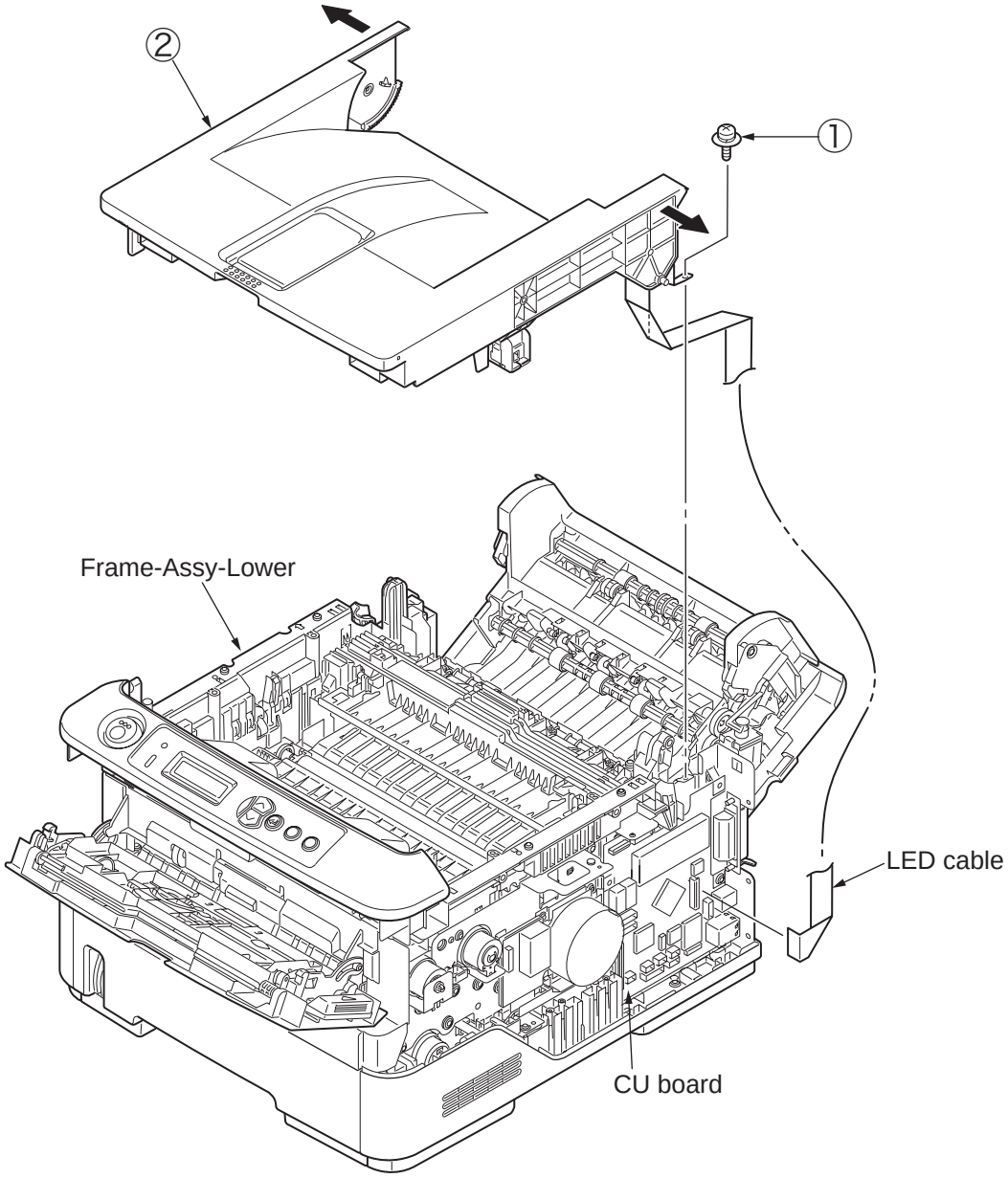


3.3.13 Stacker-Cover-Assy

(1) Open the Rear-Cover-Assy.
(2) Open the Stacker-Cover-Assy.
(3) Remove Cover-Side-R and Cover-Side-L. (Refer to 3.3.3/3.3.4)
(4) Remove Plate-Cover-Shield-CU. (Refer to 3.3.5(2))
(5) Remove film-Core-Holder. (Refer to 3.3.7(5))
(6) Remove LED cable from CU board.
(7) Remove the screw (Silver) ①.
(8) Open the Stacker-Cover-Assy ② by the arrow direction and remove Stacker-Cover-Assy ② from the supporting point of Frame-Assy-Lower.
(9) Installing is performed by the reverse procedure with removing.

(Note on removing / installing)

1. Beware of not to touch the DC motor inattentively (Do not rotate motor).



3.3.14 Fuser-Assy

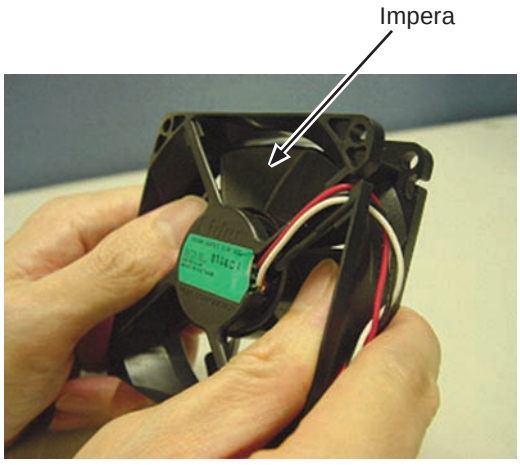
Note! Replace the Fuser-Assy by Assy unit.
It is forbidden for disassembling the Fuser-Assy, also, reusing the disassembled Fuser-Assy.

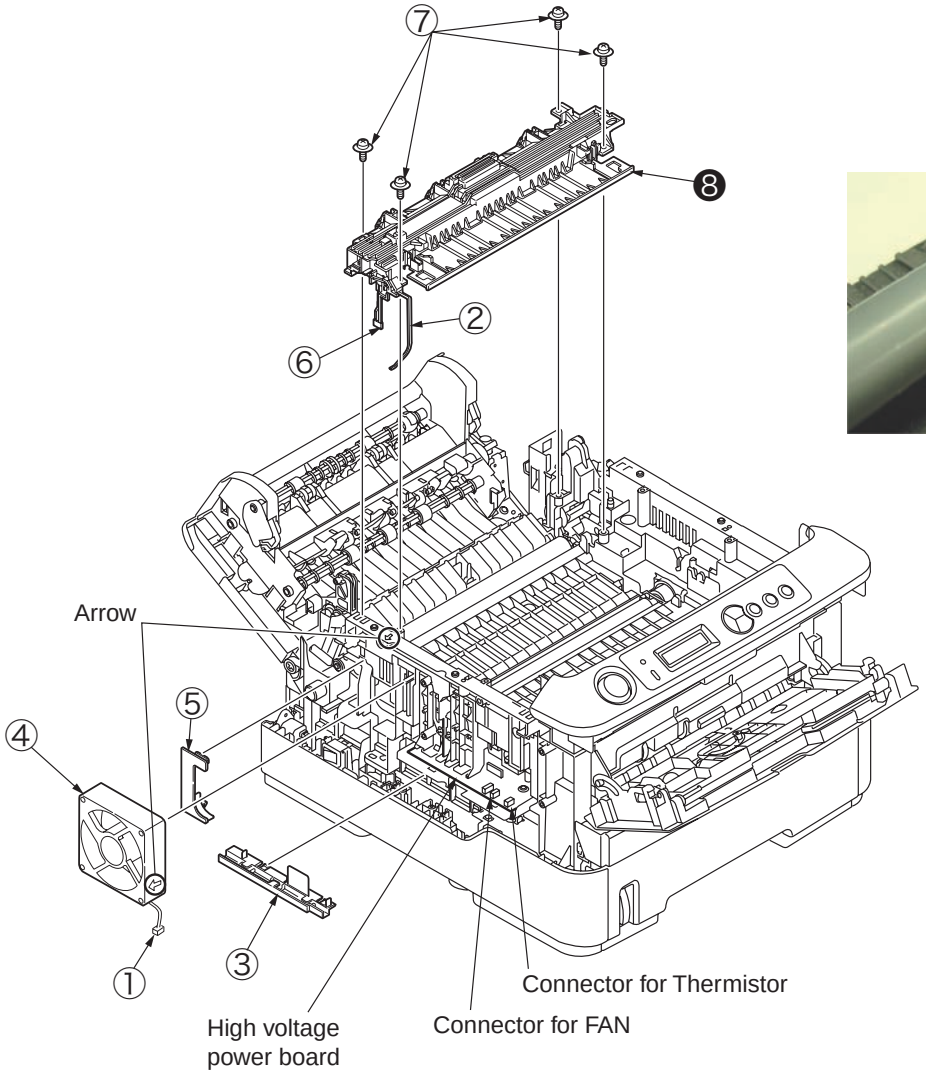
(1) Open Rear-Cover-Assy.
(2) Open Stacker-Cover-Assy.
(3) Remove Cover-Side-R and Cover-Side-L. (Refer to 3.3.3/3.3.4)
(4) Remove Stacker-Cover-Assy. (Refer to 3.3.13)
(5) Unplug connector (Motor-Fan) ① and connector (Semester) ② from high voltage power board, and remove Piece-Guide ③.
(6) Remove Motor-Fan ④. Remove Piece-Guide ⑤.
(7) Unplug the connector ⑥ of Fuser-Assy, which is at the back side of Piece-Guide ⑤.
(8) Remove the 4 screws (Silver) ⑦. Remove the Fuser-Assy ❽ by bowing down the lock at the left side.
(9) Installing is performed by the inverse procedure with removing.

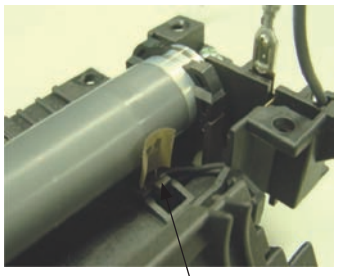
Note! Fuser-Assy ❽ may be really hot, beware of handling.

(Note on removing / installing)

1. Install the screw (Silver) ⑦ in its original groove. (Do not make new screw tap.)
2. Do not add excessive pressure while tightening the screw (Silver) ⑦.
3. Beware of not to touch the DC motor inattentively (Do not rotate the motor).
4. Install the Motor-Fan ④ by combining the arrow indicating Fan flowing direction and the arrow direction that is incused on the Fan-Lower.
5. Beware of not to deform the thermistor while replacing the Fuser-Assy.
6. While removing or installing FAN, do not press impeller of the FAN as shown by the following photo. In case of the impeller unfastened by mistake, do not reuse it and install a new FAN.




⑦
⑧
②
⑥
Arrow
⑤
④
①
③
High voltage
power board
Connector for FAN
Connector for Thermistor



Thermistor

3.3.15 Rear-Cover-Assy

(1) Open Rear-Cover-Assy.

(2) Open Stacker-Cover-Assy.

(3) Remove Cover-Side-R. Remove Cover-Side-L. (Refer to 3.3.3/3.3.4)

(4) Remove Cover-Face Up-A ① from the supporting point with opening the right side supporting point part of Rear-Cover-Assy.

(5) Remove the 2 screws (Black) ②. Remove Plate-Solenoid ③.

(6) Remove Solenoid ❹ from Rear-Cover-Assy ❺.

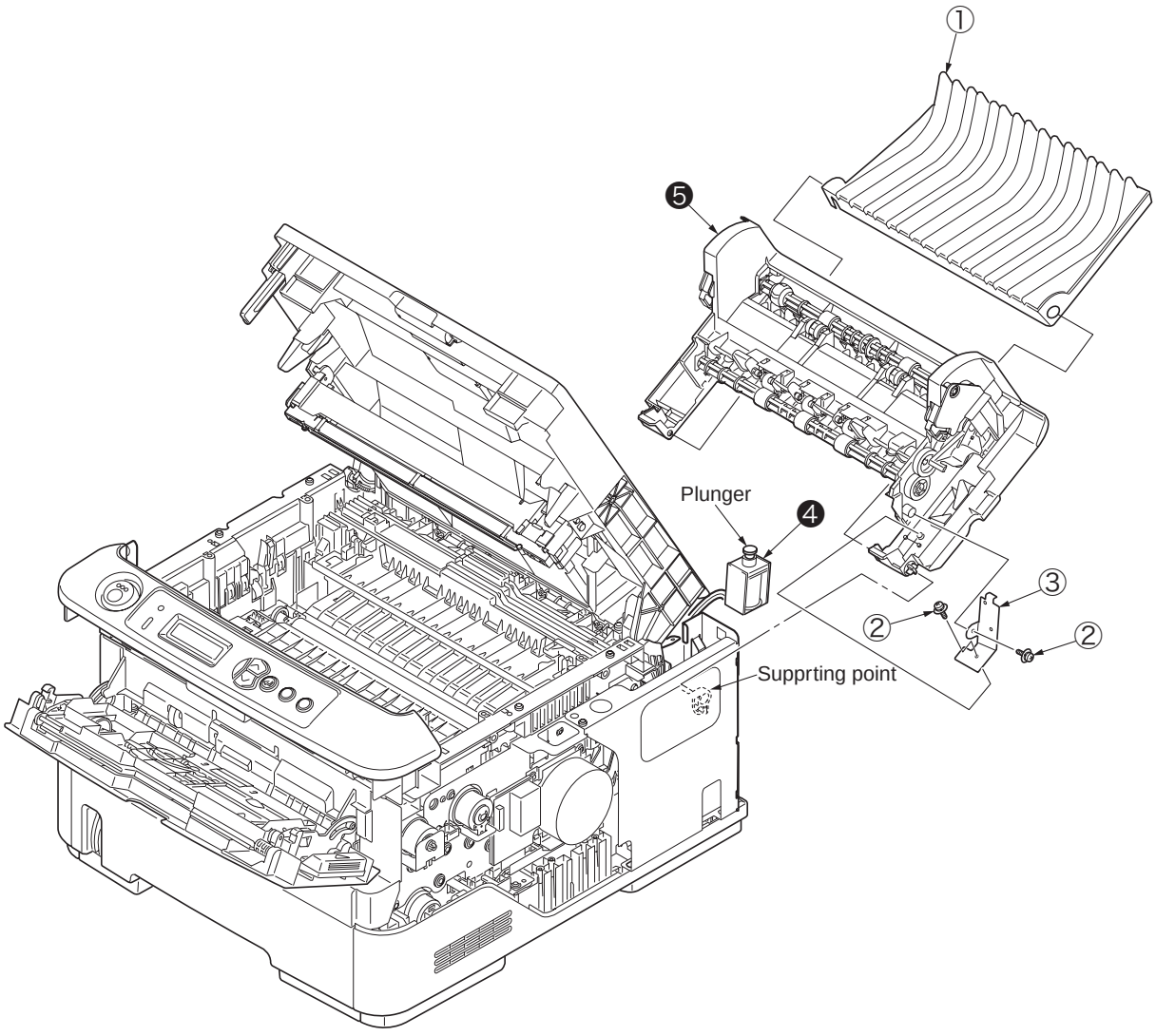
Because the plunger is not fixed, beware of not to drop or lose it.

(7) Remove Rear-Cover-Assy by bowing down the supporting point part of Rear-Cover-Assy to the inner side.

(8) Installing is performed by the inverse procedure with removing.

(Note on removing / installing)

1. Beware of not to touch the DC motor inattentively (Do not rotate motor).
2. About the installing of Rear-Cover-Assy ❺, remove Cover-Face Up-A ①, make the supporting point part to a bowed situation and then perform installing.

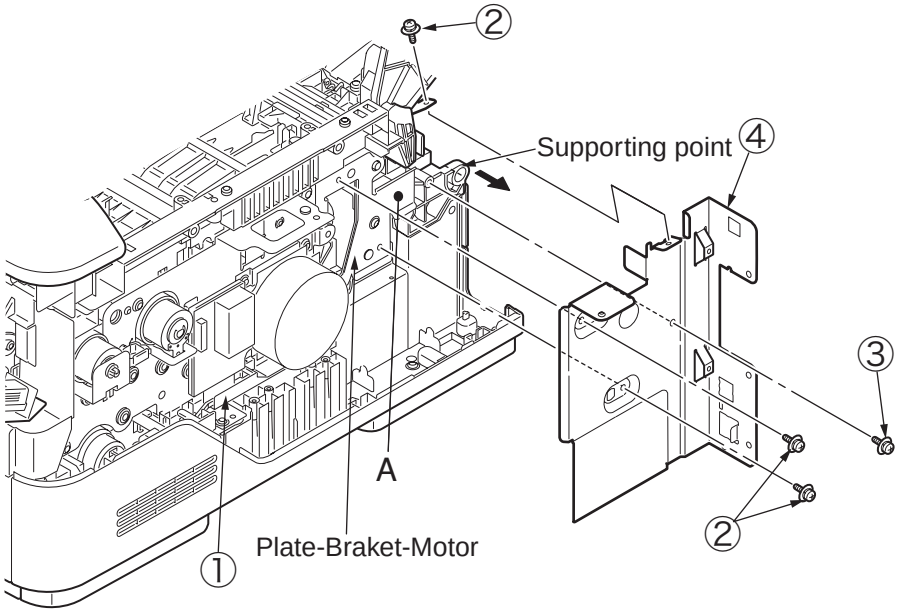


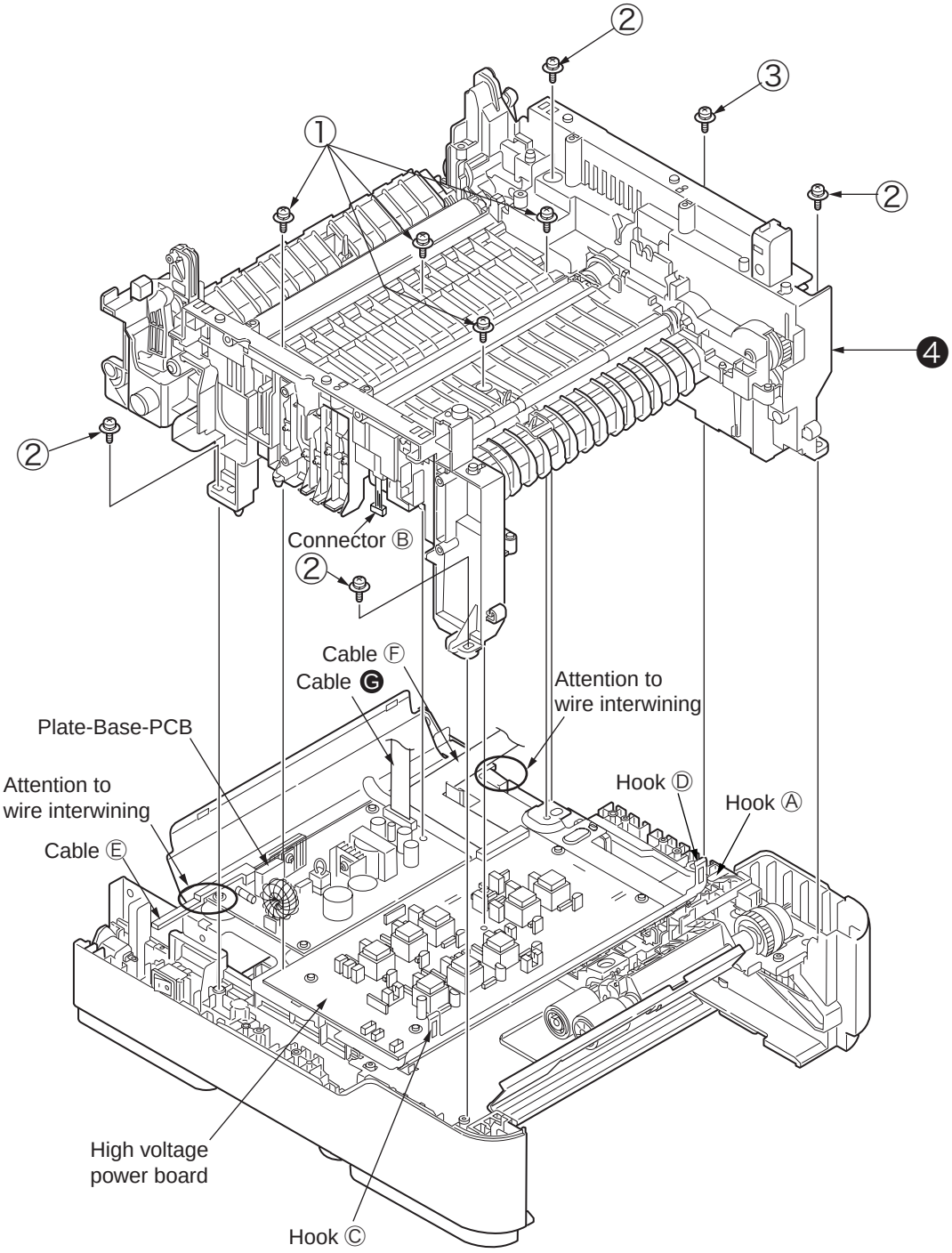
3.3.16 Frame-Assy-Lower

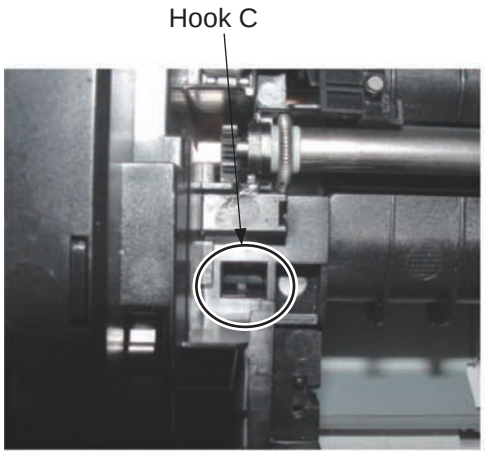
(1) Open Rear-Cover-Assy.
(2) Open Stacker-Cover-Assy.
(3) Remove Cover-Side-R. Remove Cover-Side-L. (Refer to 3.3.3/3.3.4)
(4) Remove CU Board. (Refer to 3.3.5)
(5) Remove Motor-DC-Main. (Refer to 3.3.6)
(6) Remove Piece-Guide ①.
(7) Remove the 3 screw (Silver) ② and screw (Black) ③. Remove Plate-Shield-CU ④.
(8) Pass the connector of Low Voltage Power Board through the Portion A of Plate-Bracket-Motor from above to the downward.
(9) Remove OPE Cover-Assy. (Refer 3.3.7)
(10) Remove MPT-Assy. (Refer to 3.3.9)
(11) Remove Front-Guide-Assy. (Refer to 3.3.10)
(12) Remove Roller-Assy-Feed. (Refer to 3.3.11)
(13) Remove Guide-Paper-Duplex. (Refer to 3.3.12)
(14) Remove Stacker-Cover-Assy. (Refer to 3.3.13)
(15) Remove Fuser-Assy. (Refer to 3.3.14)
(16) Remove Rear-Cover-Assy. (Refer to 3.3.15)
(17) Remove all the cable from Hook A of Holder-SNS, extend them and put on the right front side of the printer.
(18) Remove connector B from high voltage power board.
(19) Remove the 4 long screws (Silver) ①, the 4 screws (Black) ②, the short screw (Silver) ③.
(20) Remove Hook C and Hook D of Plate-Base-PCB using minus driver.
(21) Remove Frame-Assy-Lower ④.
(22) Installing is performed by the inverse procedure with removing.

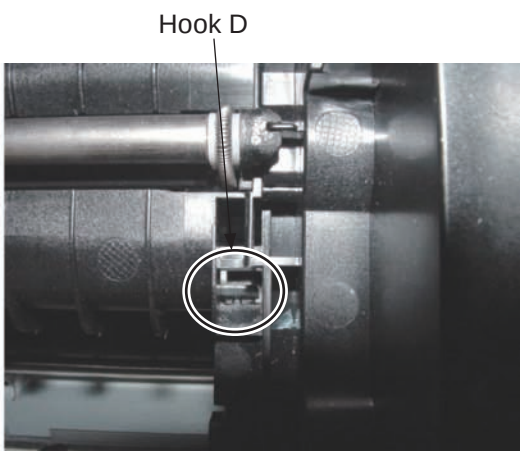
(Note on removing / installing)

1. Beware of not to touch the DC motor inattentively (Do not rotate motor).
2. About the installing of Rear-Cover-Assy ⑤, remove Cover-Face Up-A ①, make the supporting point part to a bowed situation and then perform installing.
3. While installing Frame-Assy-Lower ④, beware of not to tuck Cable Ⓕ and Cable Ⓖ between Frame-Assy-Lower ④ and Plate-Base-PCB.




②
③
①
②
④
②
Connector Ⓑ
②
Cable Ⓕ
Cable Ⓖ
Attention to
wire interwining
Plate-Base-PCB
Attention to
wire interwining
Hook Ⓓ
Hook Ⓐ
Cable Ⓔ
High voltage
power board
Hook Ⓒ


Hook C


Hook D

3.3.17 High voltage / Low voltage power board

⚠Warning	Risk of Electric Shock	⚡

There is a risk of electric shock during replacement of the low voltage power supply.

Use insulating gloves or avoid direct contact with any conducting part of the power supply, and caution should be exercised during replacement.

The capacitor may take one minute to complete discharge after the AC cord is unplugged. Also, there is a possibility that the capacitor doesn't discharge because of a breakage of the PCB, etc., so remember the possibility of electric shock to avoid electric shock.

(1) Open Rear-Cover-Assy.

(2) Open Stacker-Cover-Assy.

(3) Remove Frame-Assy-Lower. (Refer to 3.3.16)

(4) Remove the big screw (Silver) ①. Remove the earth wire.

(5) Remove the AC socket ② and power switch ③. Remove Guide-Cassette-L.

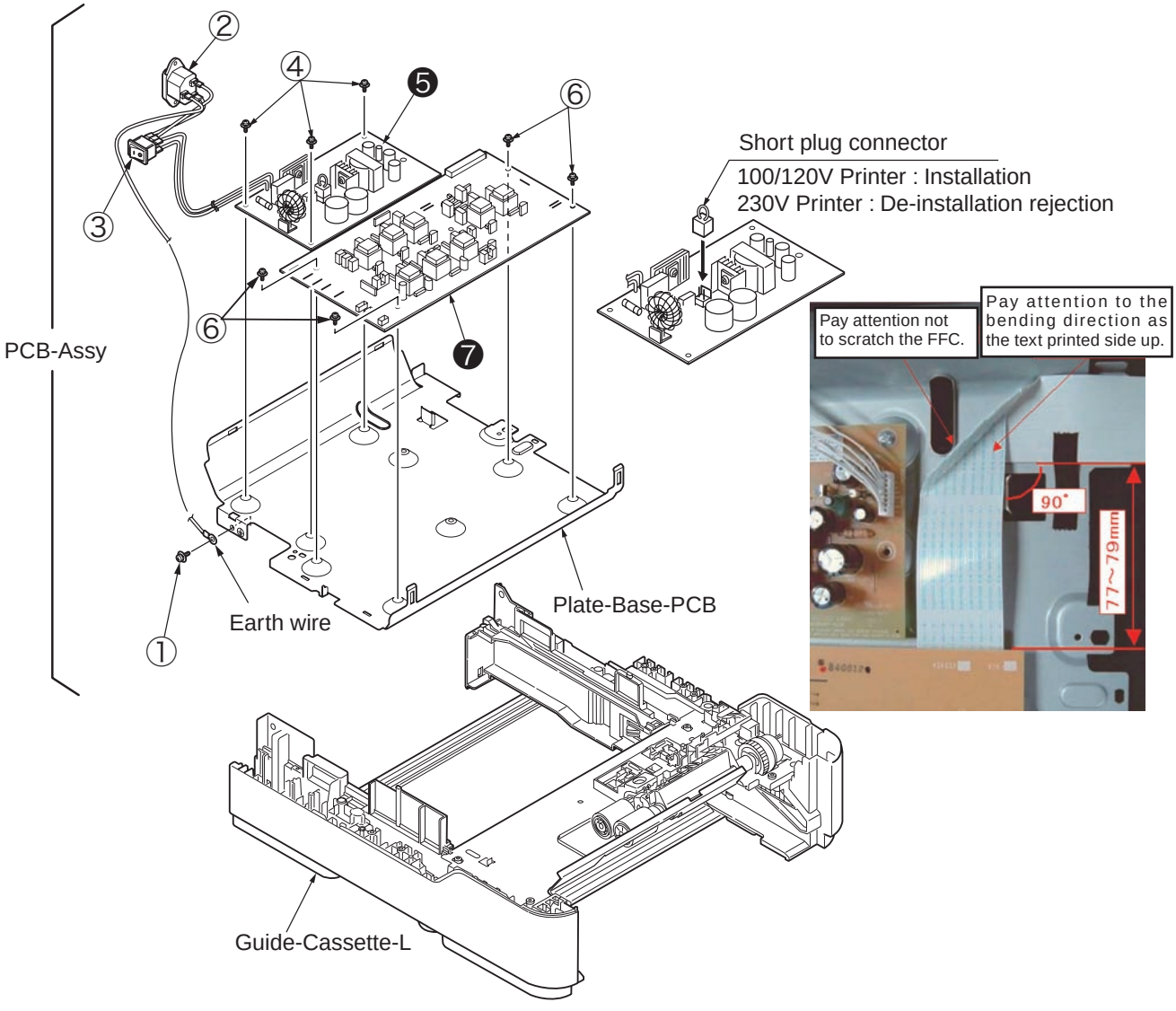
(6) Remove the 3 small screws (Silver) ④. Remove Low voltage power board ❺.

(7) Remove the 4 small screws (Silver) ⑥. Remove High voltage power board ❼.

(8) Installing is performed by the inverse procedure with removing.

(Note on removing / installing)

1. Beware of not to touch the DC motor inattentively (Do not rotate motor).
2. Do not apply excessive pressure to the power switch ③.
3. While installing High voltage / Low voltage power board to the Plate-Base-PCB, do not deform the Plate-Base-PCB.

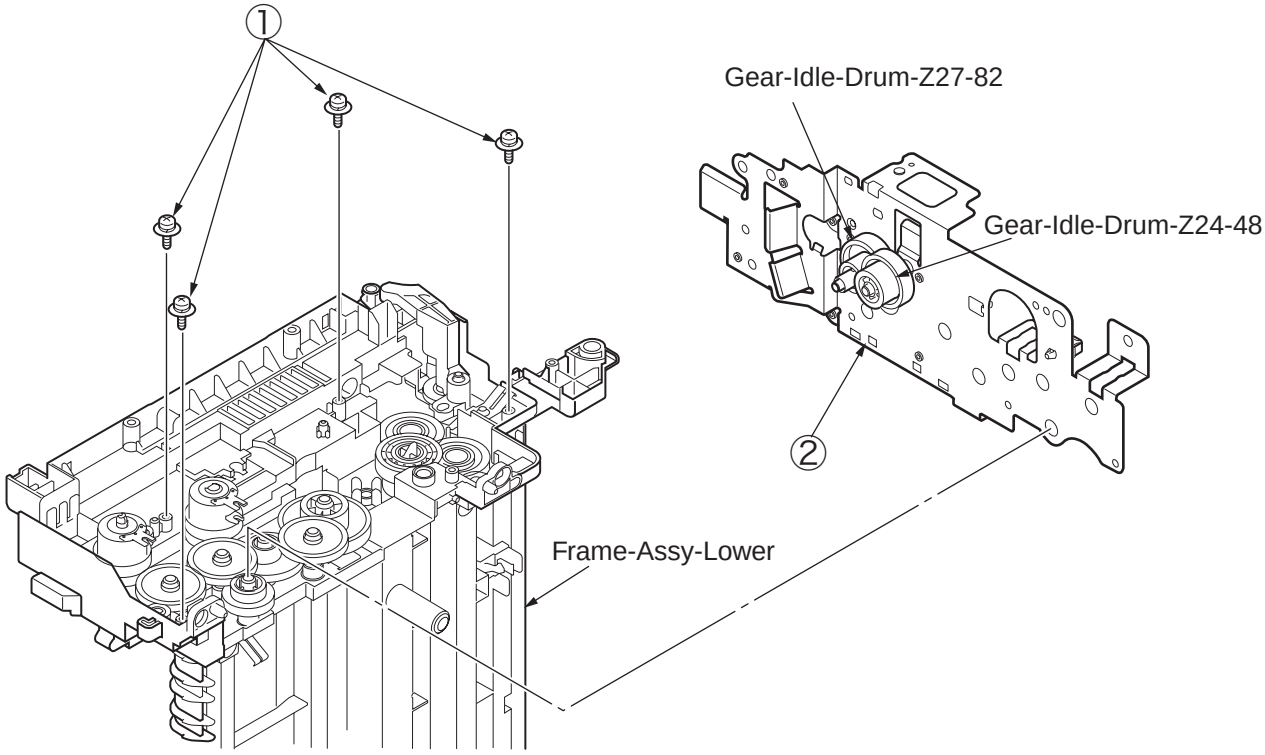


3.3.18 Plate-Bracket-Motor

(1) Open Rear-Cover-Assy.
(2) Open Stacker-Cover-Assy.
(3) Remove Motor-DC-Main. (Refer to 3.3.6)
(4) Remove Frame-Assy-Lower. (Refer to 3.3.16)
(5) Assemble Frame-Assy-Lower as the diagram.
(6) Remove the 4 screws (Black) ①. Remove Plate-Bracket-Motor ②.
(7) Installing is performed by the inverse procedure with removing.

(Note on removing / installing)

1. Beware of not to touch the DC motor inattentively (Do not rotate motor).
2. While installing beware of not to tuck Cable between Frame-Assy-Lower and Plate-Bracket-Motor.
3. Beware of not to drop the gear or scratch the surface of gear.
4. Because Gear-Idle-Drum-Z24-48 and Gear-Idle-Drum-Z27-82 are high precision gear, beware of handling them with particular care.



3.3.19 Roller-Back up

(1) Open Rear-Cover-Assy.

(2) Open Stacker-Cover-Assy.

(3) Remove Frame-Assy-Lower. (Refer to 3.3.16)

(4) Remove Plate-Bracket-Motor. (Refer to 3.3.18)

(5) Remove the screw (Black) ①. Remove the screw (Color) ② and Lever-Reset-L ③.

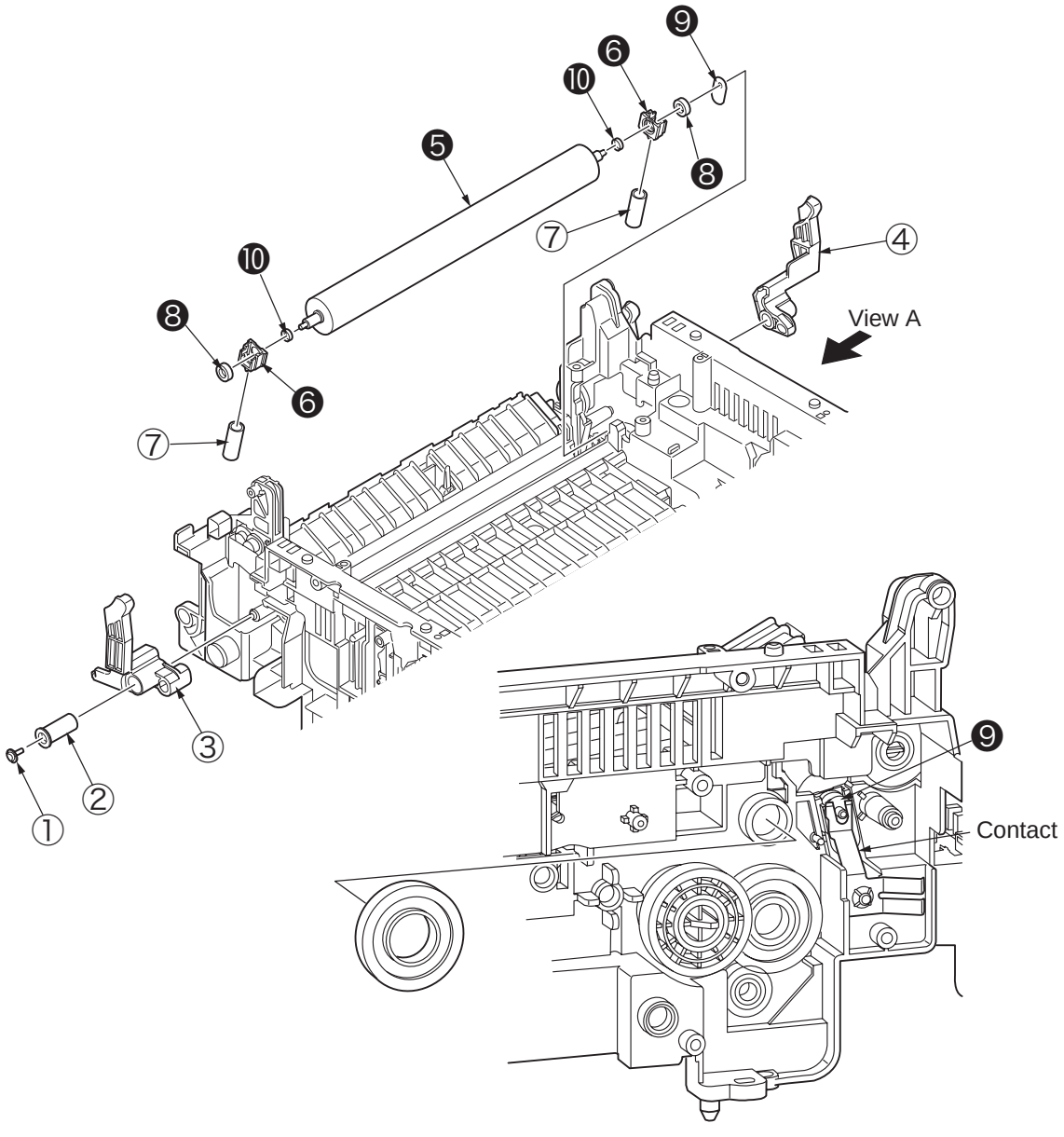
(6) Remove Lever-Reset-R ④.

(7) Lift up Roller-Back up ❺ and remove it. (At this moment, 2 of Holder-BU ❻, Spring-Bias (Back up) ⑦, Bearing-Ball ❽, and Washer-C ❾ are also removed.)

(8) Remove color ❿ that are attached on both tops of the shaft of Roller-Back up ❺.

(Note on removing / installing)

1. Beware of not to touch the DC motor inattentively (Do not rotate motor).
2. While installing Washer-C ❾, confirm it existing between contact and Holder-BU ❻. (Refer to View A)



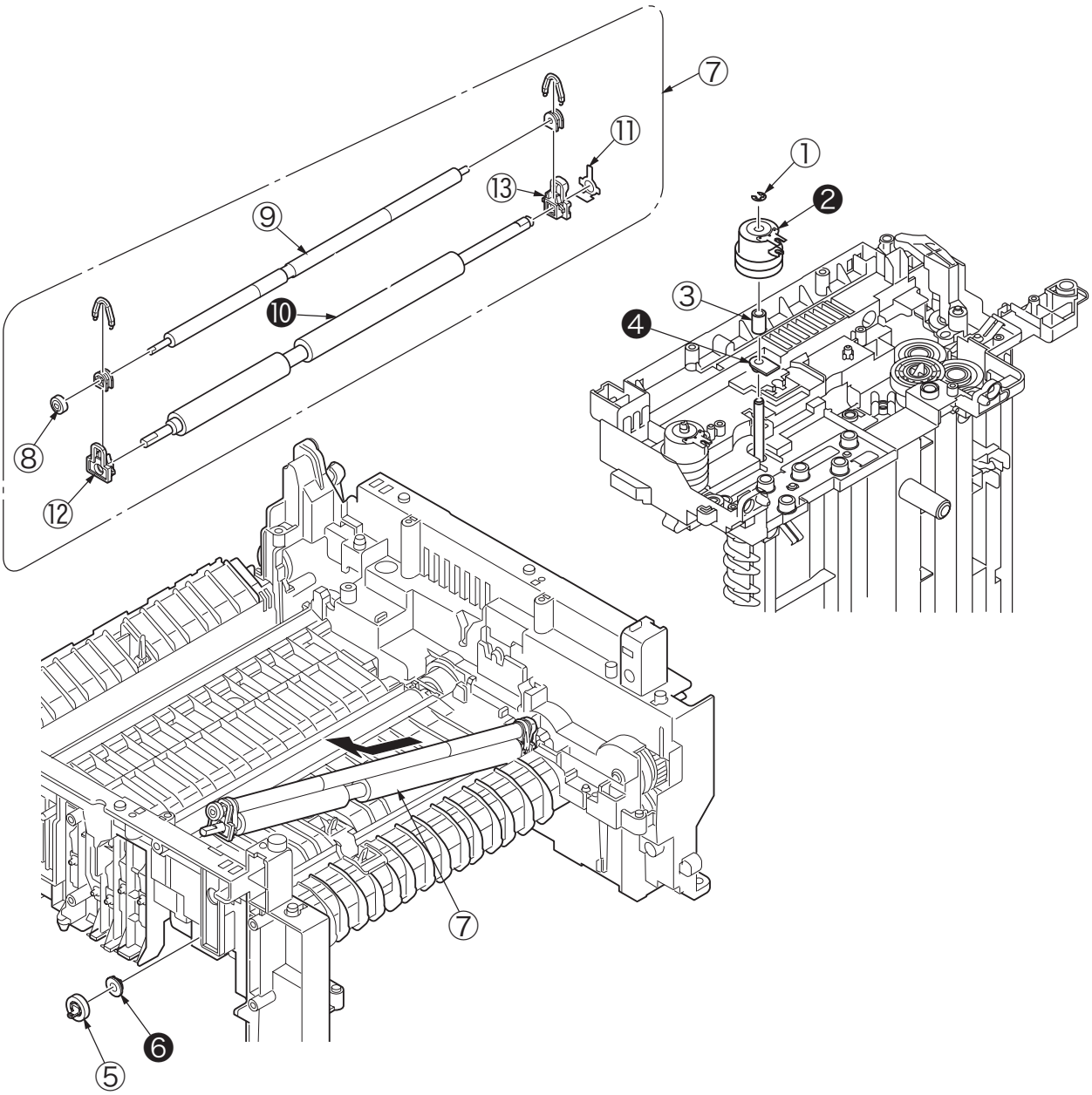
View A

3.3.20 Roller-Resist

(1) Open Rear-Cover-Assy.
(2) Open Stacker-Cover-Assy.
(3) Remove Frame-Assy-Lower. (Refer to 3.3.16)
(4) Remove Plate-Bracket-Motor. (Refer to 3.3.18)
(5) Remove the E ring ①. Remove the Gear-Assy-Clutch ❷, Spacer-Clutch ③ and Bearing-R ❹.
(6) Remove the lock of Gear-Resist ⑤. Remove Gear-Resist ⑤, Bearing-Resist-Assy ❻.
(7) Lift up the left side of Roller-Resist-Assy ⑦ and remove it at the arrow direction.
(8) Remove the lock of Gear-Pressure ⑧. Remove Gear-Pressure ⑧ from Roller-Pressure ⑨.
(9) Remove Plate-Contact-PA ⑪ and Holder-Resist from Roller-Resist ❿.
Remove Holder-Resist ⑬.
(10) Installing is performed by the inverse procedure with removing.

(Note on removing / installing)

1. Beware of not to touch the DC motor inattentively (Do not rotate motor).

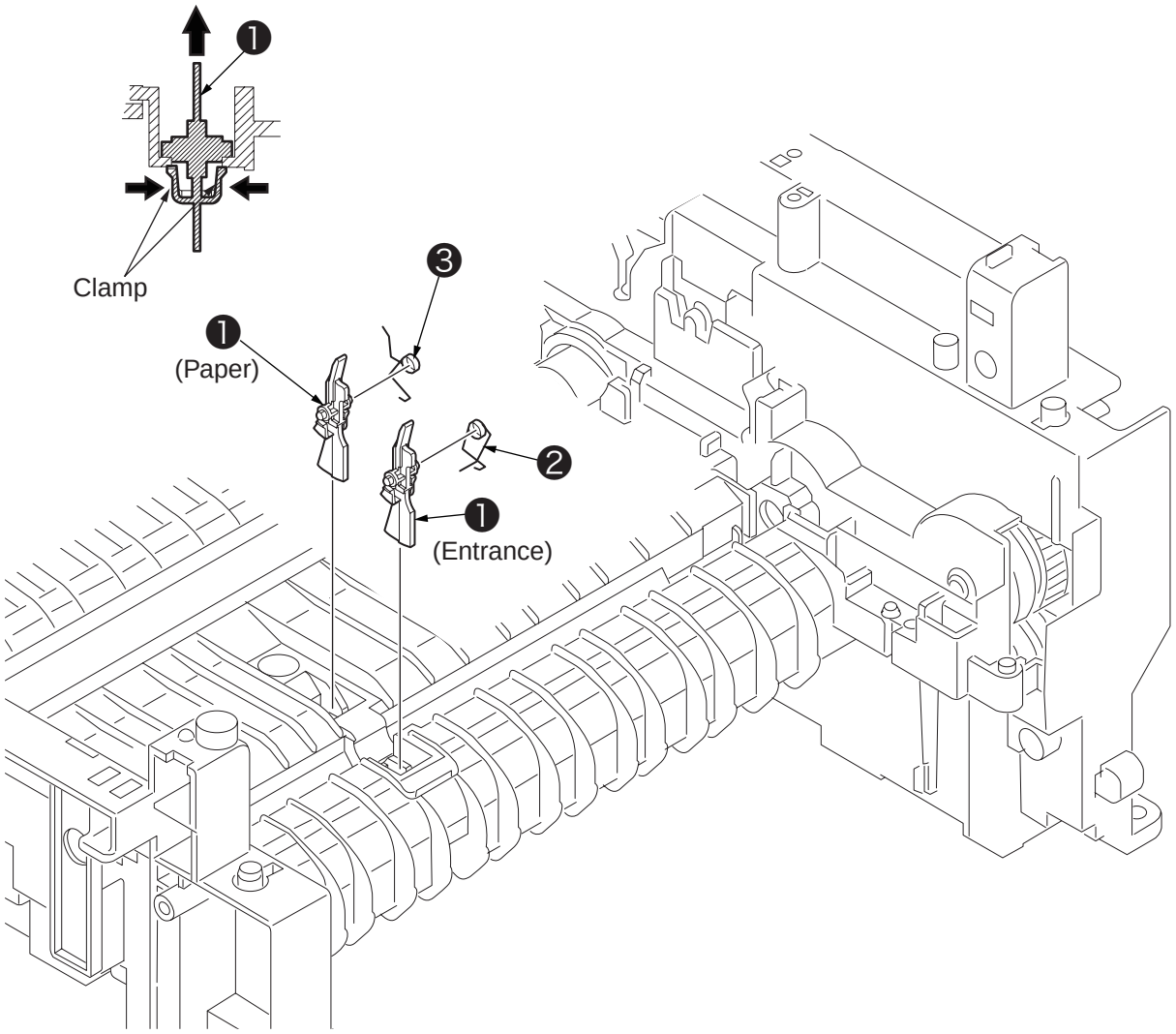


3.3.21 Lever-In-Sensor

(1) Open Rear-Cover-Assy.
(2) Open Stacker-Cover-Assy.
(3) Remove Frame-Assy-Lower. (Refer to 3.3.16)
(4) Remove the 2 Lever-In-Sensor (Entrance and Paper). Press the Clamp of ❶, press Lever-In-Sensor ① as up direction and then remove them. While remove Lever-In-Sensor ❶, beware of not to loss or break Spring-Sensor-In ❷, Spring-Write-Sensor ❸.
(5) Installing is performed by the inverse procedure with removing.

(Note on removing / installing)

1. Beware of not to touch the DC motor inattentively (Do not rotate motor).



3.2.22 Lever-Eject-Sensor/Photo-Interrupter

(1) Open Rear-Cover-Assy.

(2) Open Stacker-Cover-Assy.

(3) Remove Frame-Assy-Lower. (Refer to 3.3.16)

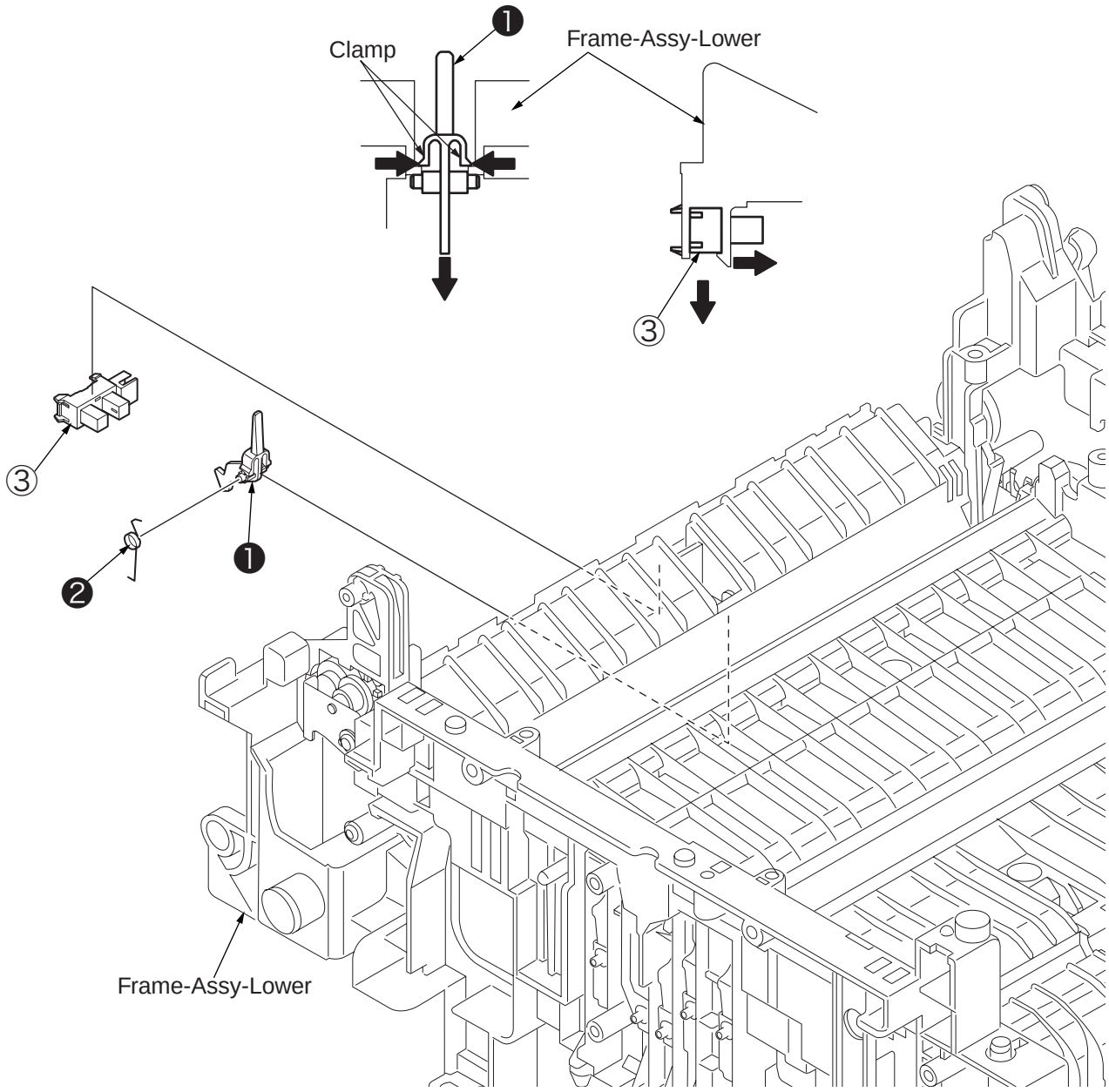
(4) Press the clamp of Lever-Eject-Sensor (Exit) ❶. Press Lever-Eject-Sensor ❶ as down direction and remove it. While remove Lever-Eject-Sensor ❶, beware of not to loss or break Spring-SNS ❷.

(5) Press the claw of Frame-Assy-Lower as the arrow direction. Remove Photo-Interrupter ③ by down direction.

(6) Installing is performed by the inverse procedure with removing.

(Note on removing / installing)

1. Beware of not to touch the DC motor inattentively (Do not rotate motor).



3.3.23 Lever-End/Lever-Duplex/Lever-Cassette/Gear-Assy-Clatch

(1) Remove Frame-Assy-Lower and PCB-Assy.

(2) Press claw Ⓐ by the arrow direction. Remove Holder-SNS ①.

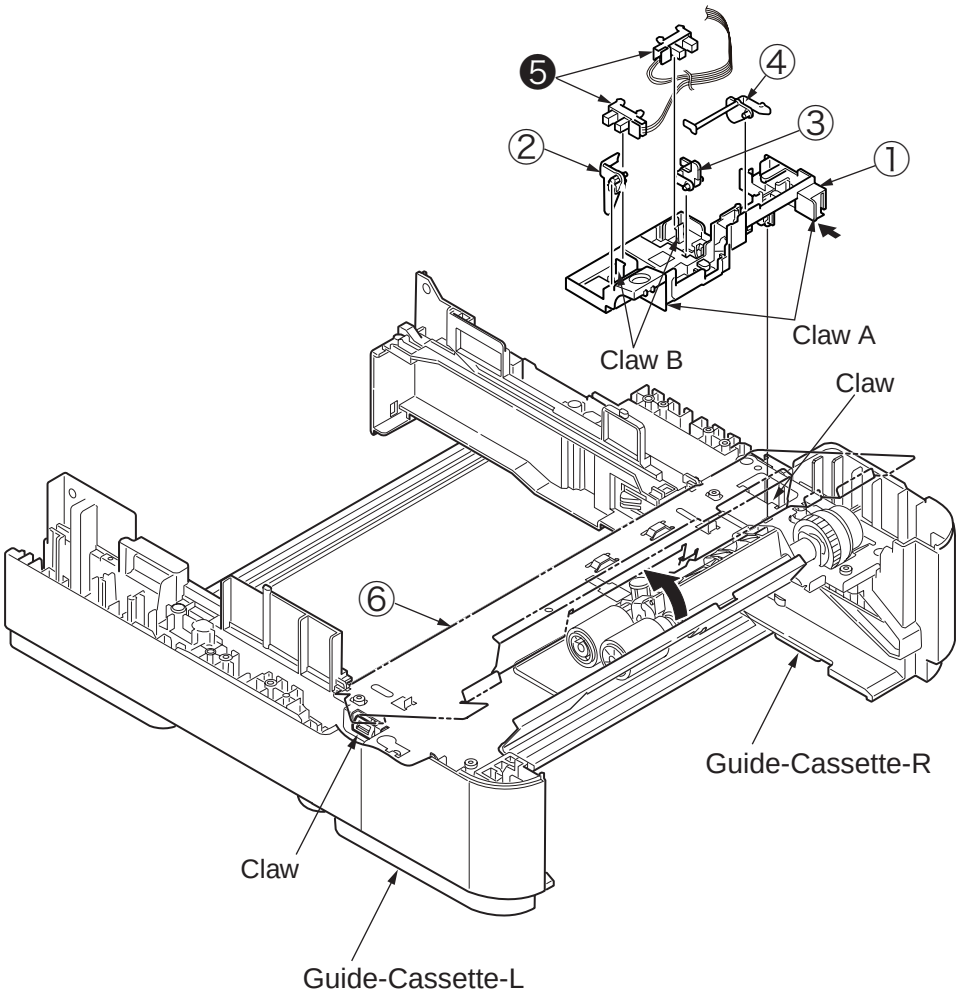
(3) Press the clamp of Lever-End ② by the up direction and then remove it.

(4) Press the clamp of Lever-Duplex ③ by the up direction and then remove it.

(5) Press the clamp of Lever-Cassette ④ by the up direction and then remove it.

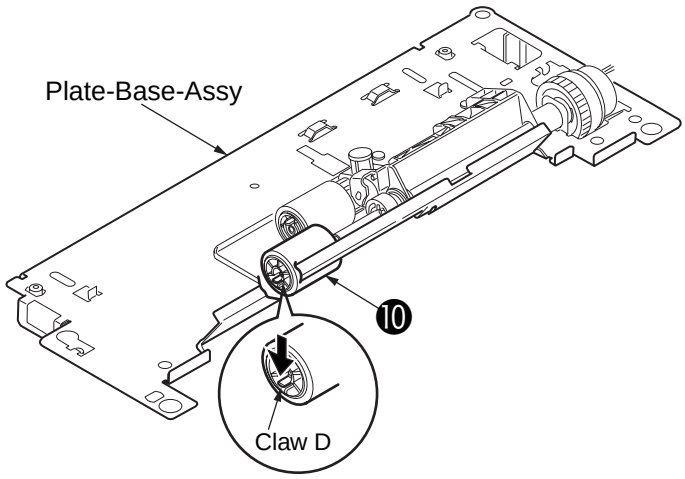
(6) Open claw Ⓑ and remove Photo-Interrupter ❺.

(7) Hold up Plate-Base-Assy ⑥ from the claw of Guide-Cassette-L, Guide-Cassette-R and remove Plate-Base-Assy ⑥.



• Remove Feed-Roller / Clutch.

(8) Press Claw D by the arrow direction an d remove Feed-Roller-NO ❿.

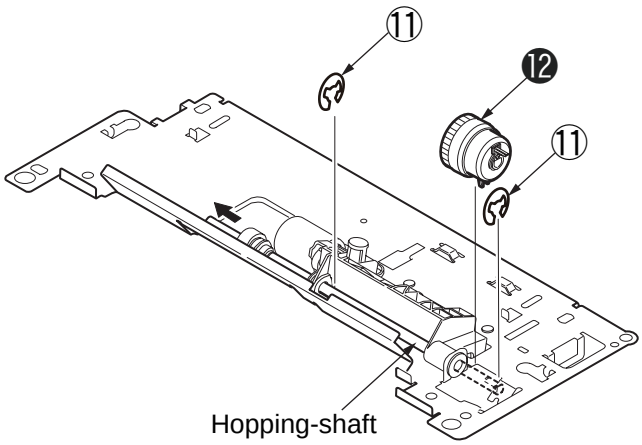


(9) Remove the 2 of E ring ⓫, Slide Hopping-shaft by the arrow direction and remove Gear-Assy-Clutch ⓬.

(10) Installing is performed by the inverse procedure with removing.

(Note on removing / installing)

1. Beware of not to touch the DC motor inattentively (Do not rotate motor).



3.3.24 Paper feeding roller (Roller-Pick-Up,Roller-Feed-NOW,Roller-Assy-MPT)

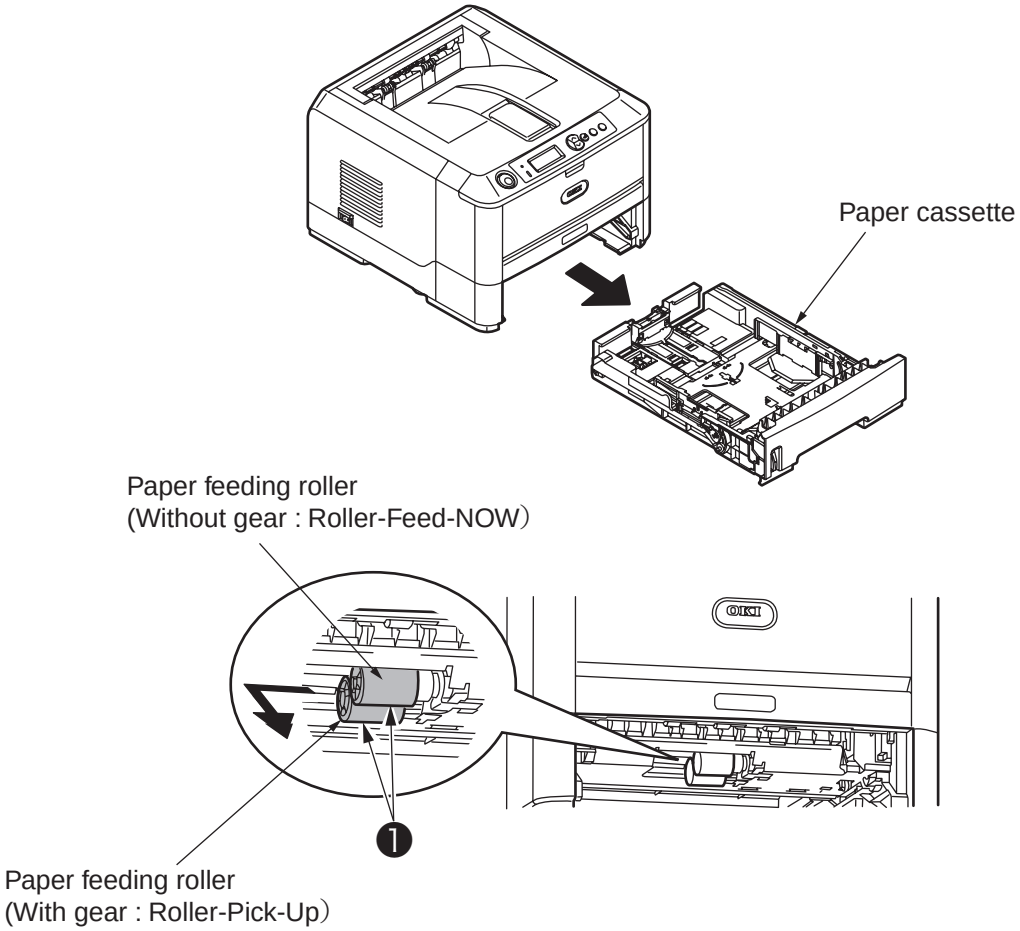
- In the case of Tray 1, Tray (Option)

(1) Shut off the power of Printer. Draw and take off the Paper Cassette of Tray.

(2) Widen the claw of the 2 of Paper feeding roller ❶ and remove them.

(Note on removing / installing)

1. While install the Paper feeding roller (With Gear : Roller-Pick-Up), be sure to press in it till the setting sound at the deep side shaft can be heard as the confirmation of fixing.
2. While install the Paper feeding roller (Without Gear : Roller-Feed-NOW), be sure to press in it till the setting sound at the front side shaft can be heard as the confirmation of fixing.



• In the case of Multi-purpose Tray (B420dn, B430d, B430dn, B440dn)

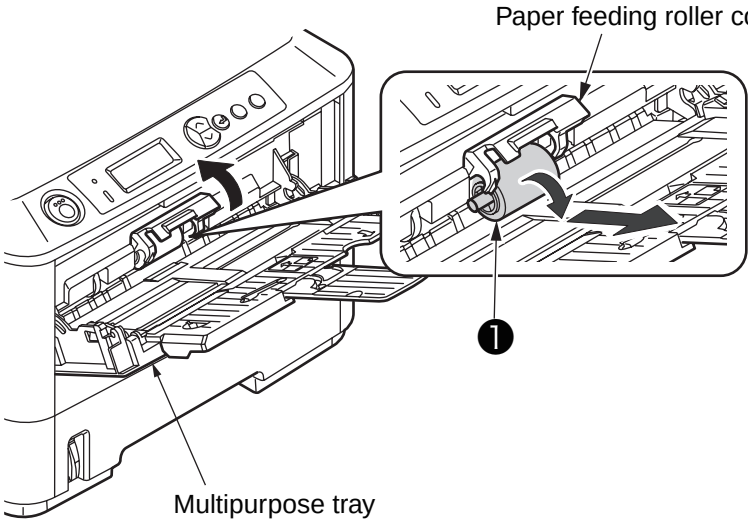
(1) Shut off the power of Printer.

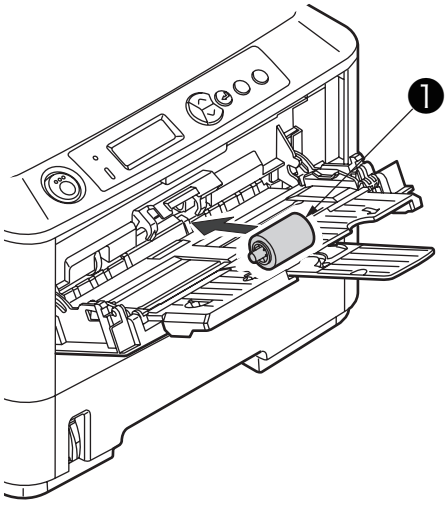
(2) Open Multi-purpose Tray, widen paper supporter.

(3) Open the cover of Paper feeding roller of Multi-purpose Tray by up direction. Remove Roller-Assy-MPT ❶ by rolling it to the near side.

(Note on removing / installing)

1. While install the Paper feeding roller (Roller-Assy-MPT) ❶, be sure to press it into the depths of the shaft and confirm whether it is fixed.





3.4 Lubricating points

This subsection indicates the lubricating points of the printer. Conversely, it means that any other parts than the specified lubricating points must not be lubricated.
There is no need to lubricate in the midst of a disassembling job. However, if lubricating oil has been wiped off, supply the specified oil.

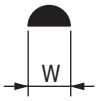
Lubricating work

(1) Symbols and names of oils

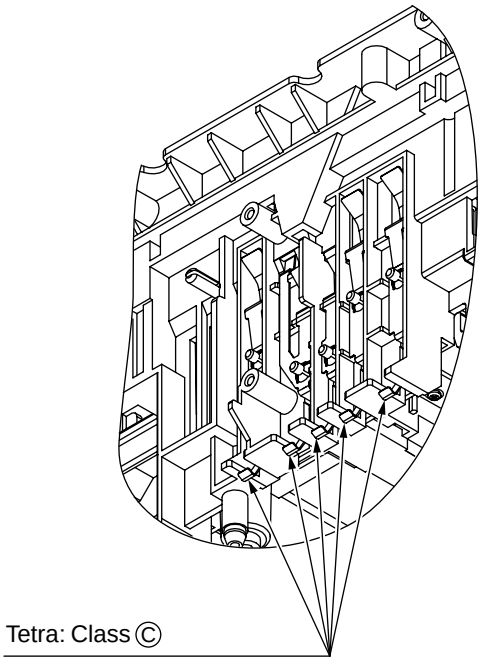
EM-30L : MOLYKOTE EM-30L
HP-300 : MOLYKOTE HP-300
Tetra : Tetra C-9310 or C-5005

(2) Boundary samples of grease

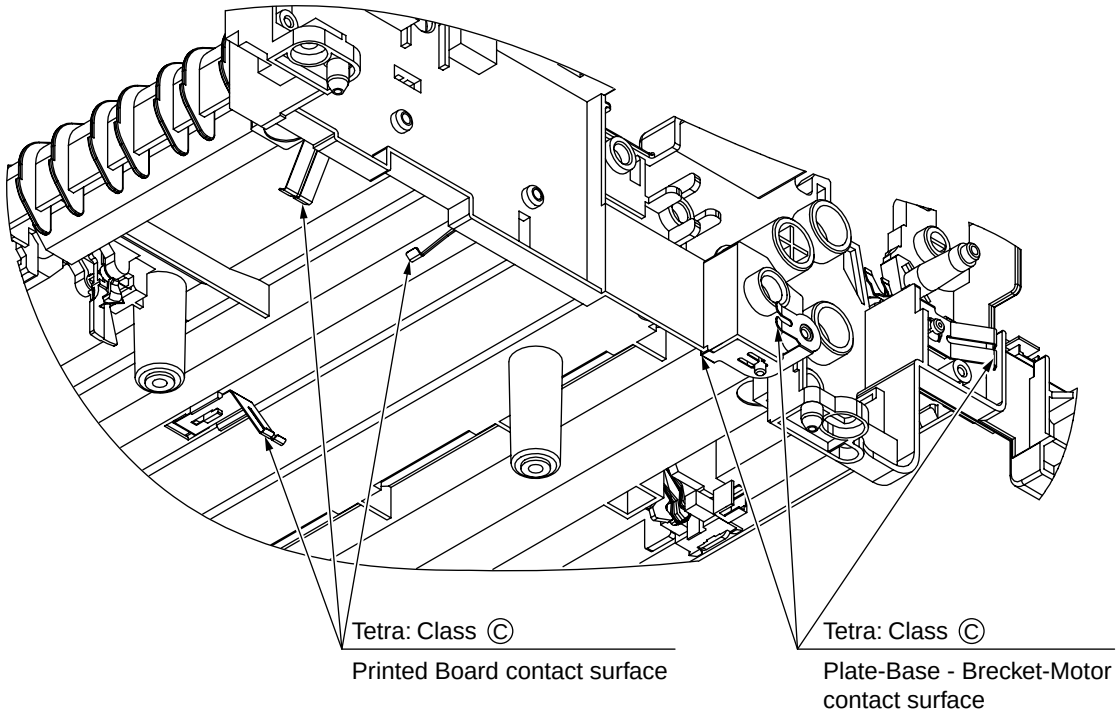
Class	S	A	B	C	D	E	F
Amount of grease(cc)	0.0005	0.003	0.005	0.01	0.03	0.05	0.1
W(mm)	1.24	2.25	2.67	3.37	4.86	5.76	7.26
Sample	•	●	●	●	●	●	●



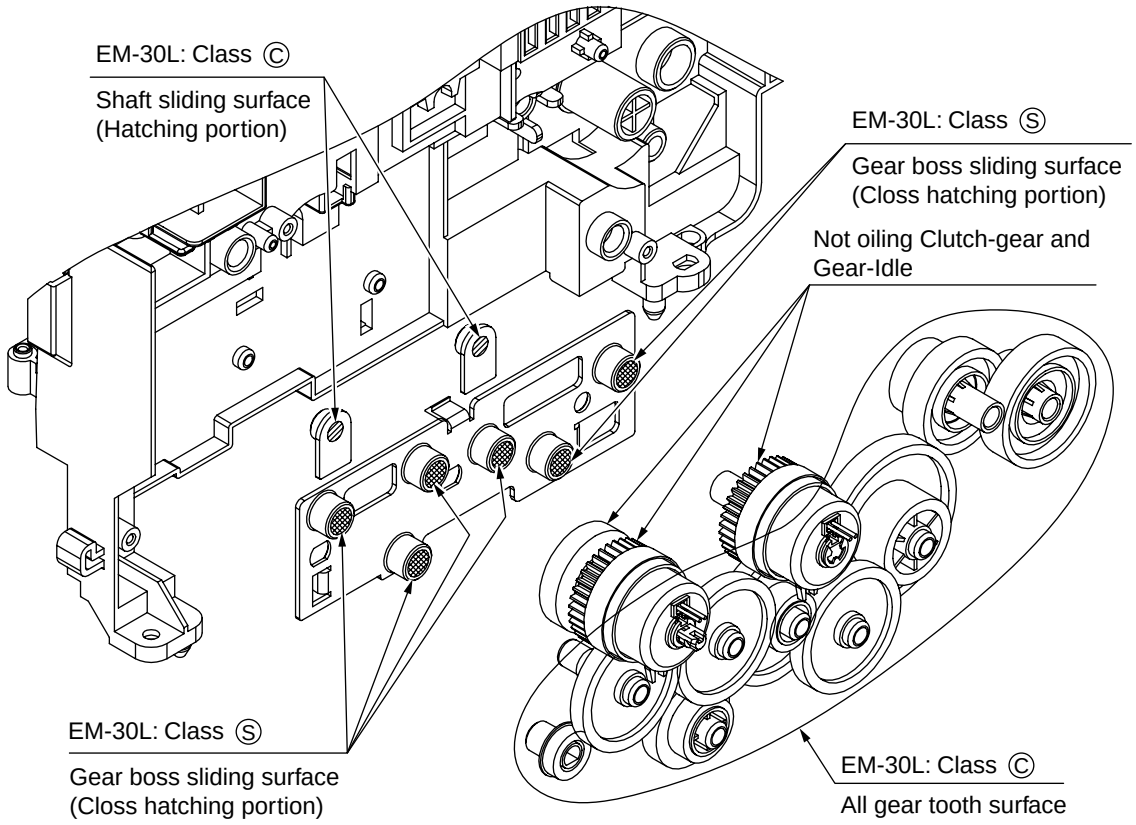
①-1 Frame-Assy-Lower



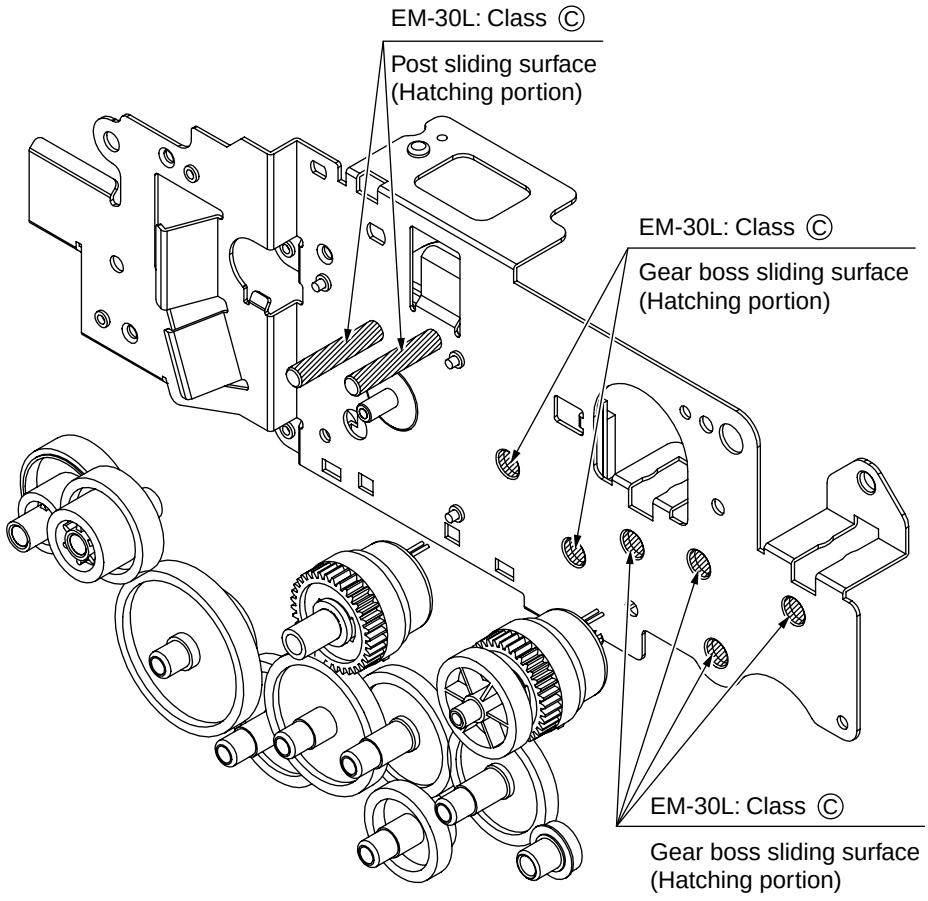
①-2 Frame-Assy-Lower



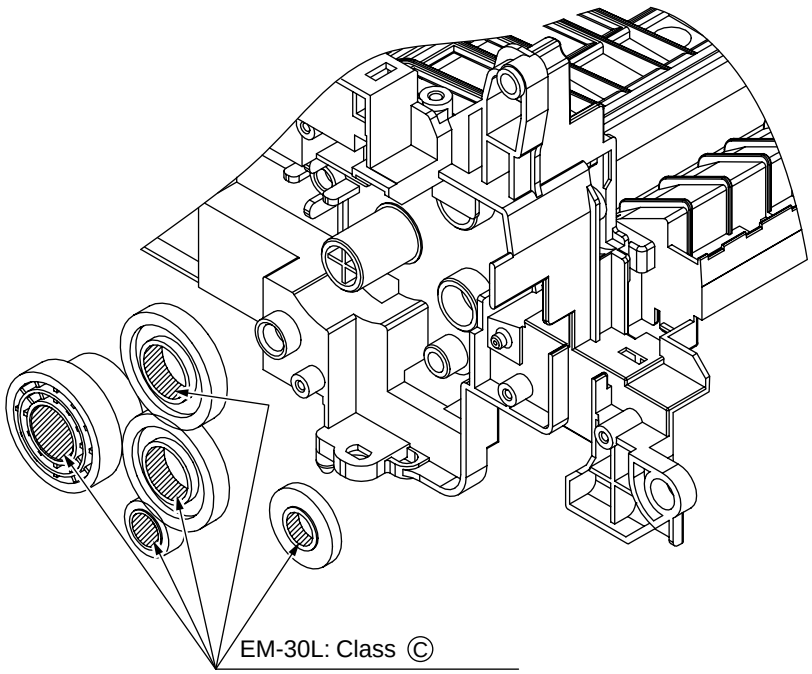
①-3 Frame-Assy-Lower



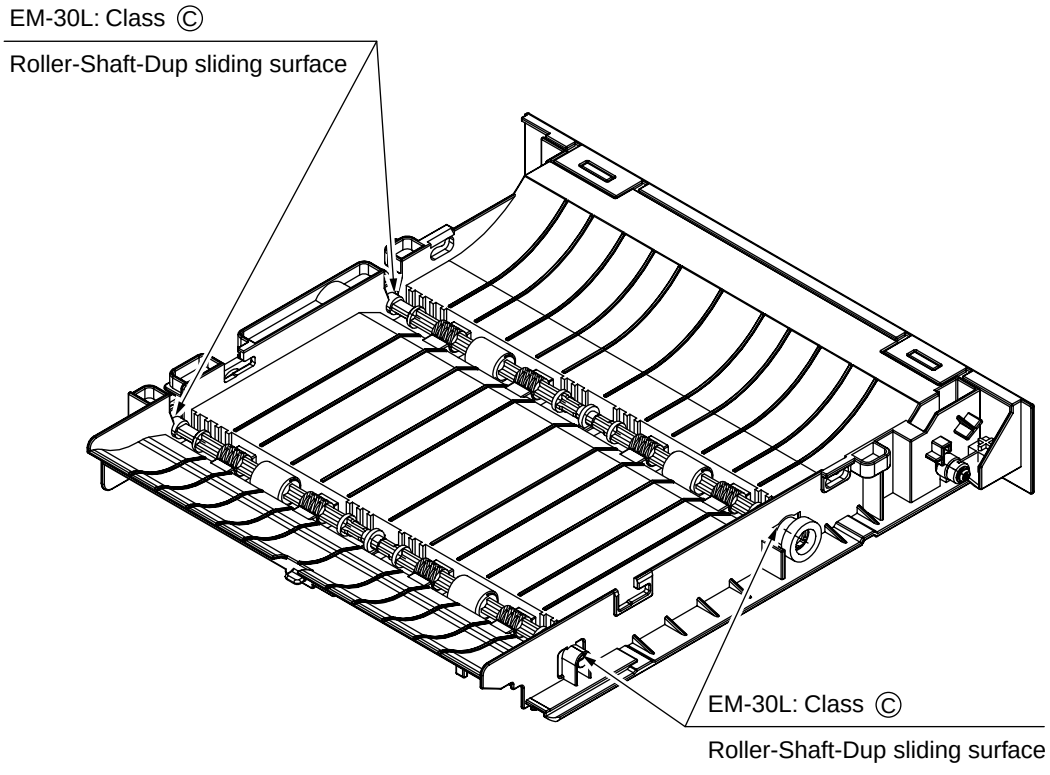
①-4 Frame-Assy-Lower



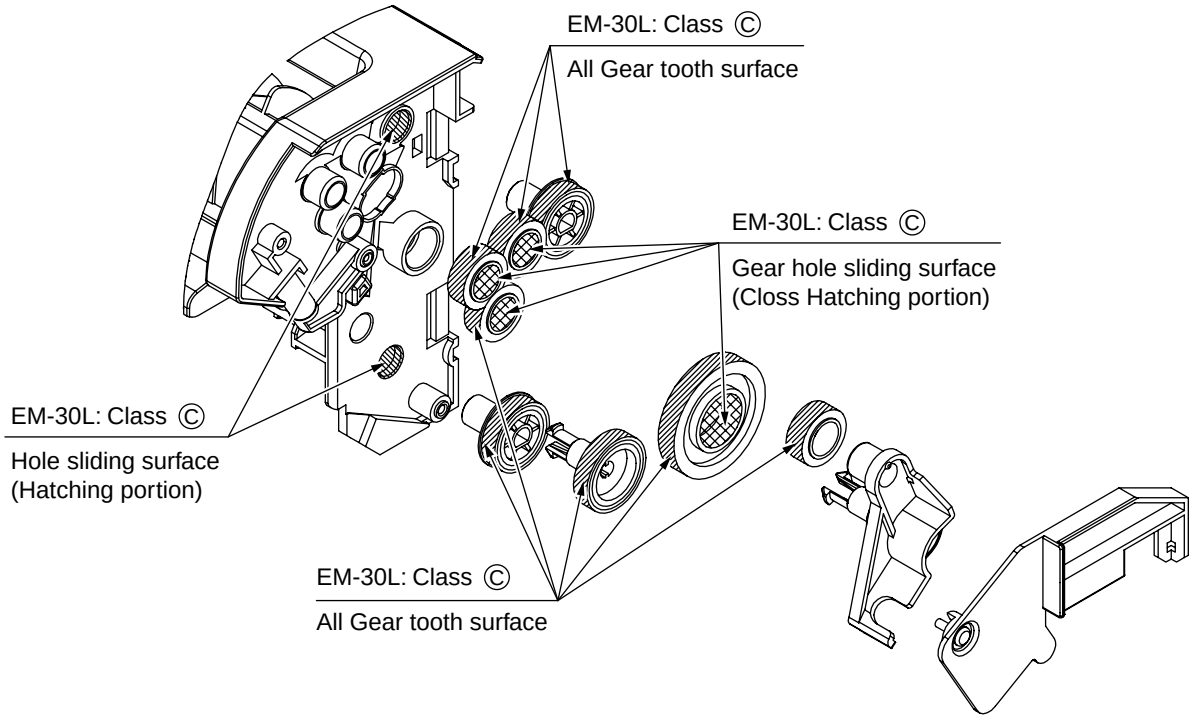
①-5 Frame-Assy-Lower



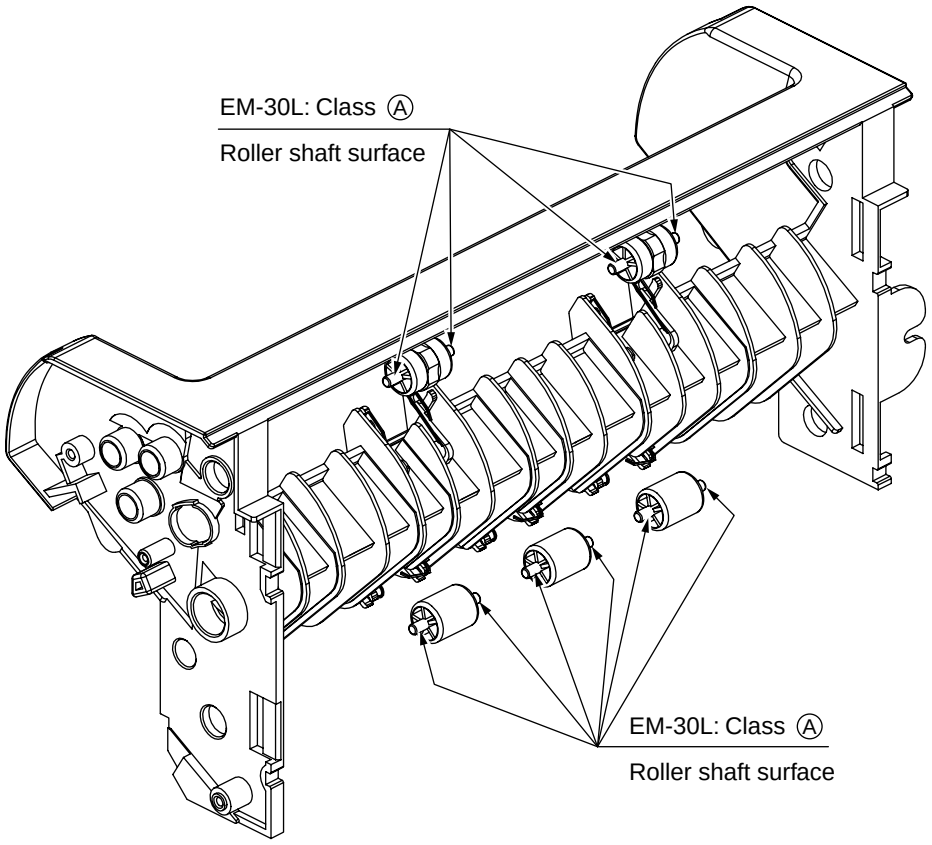
② Duplex



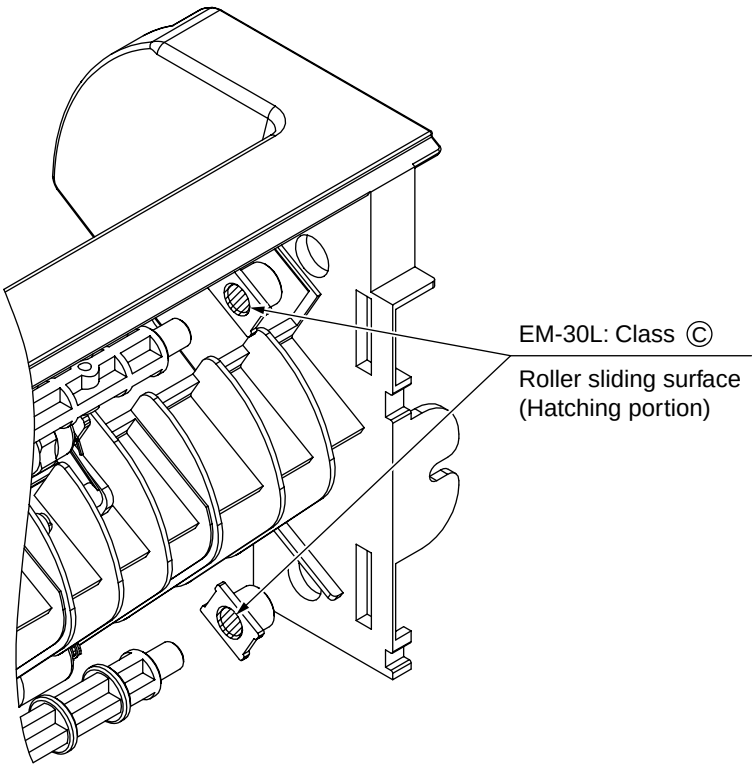
③-1 Rear-Cover-Assy



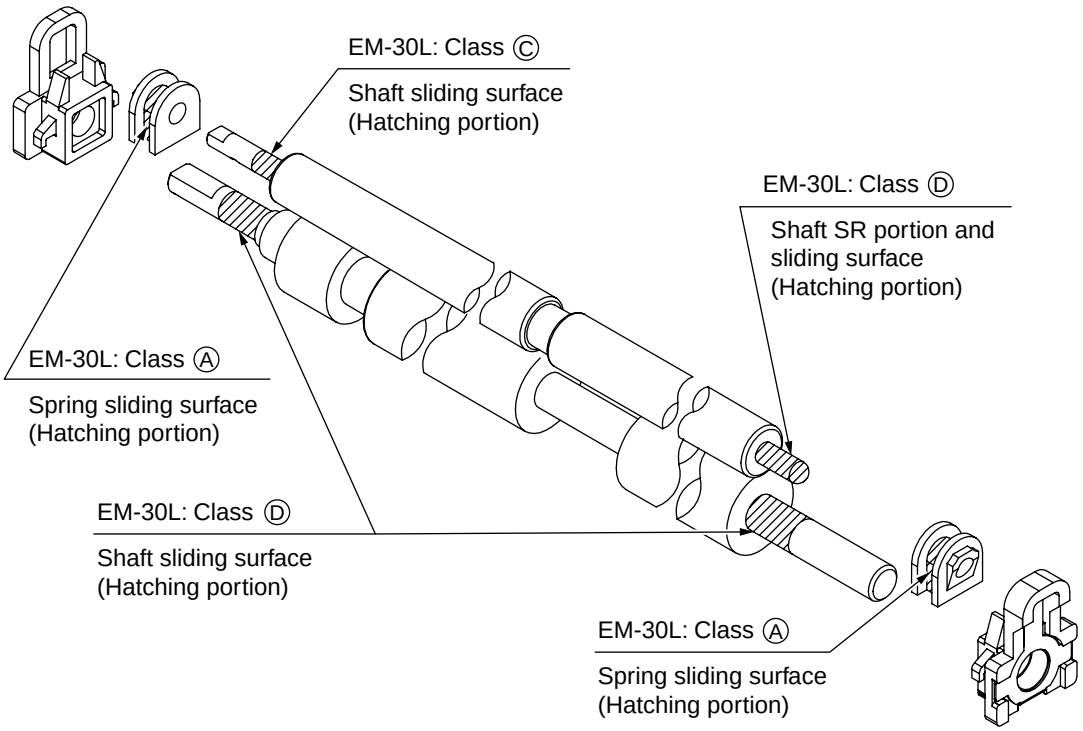
③-2 Rear-Cover-Assy



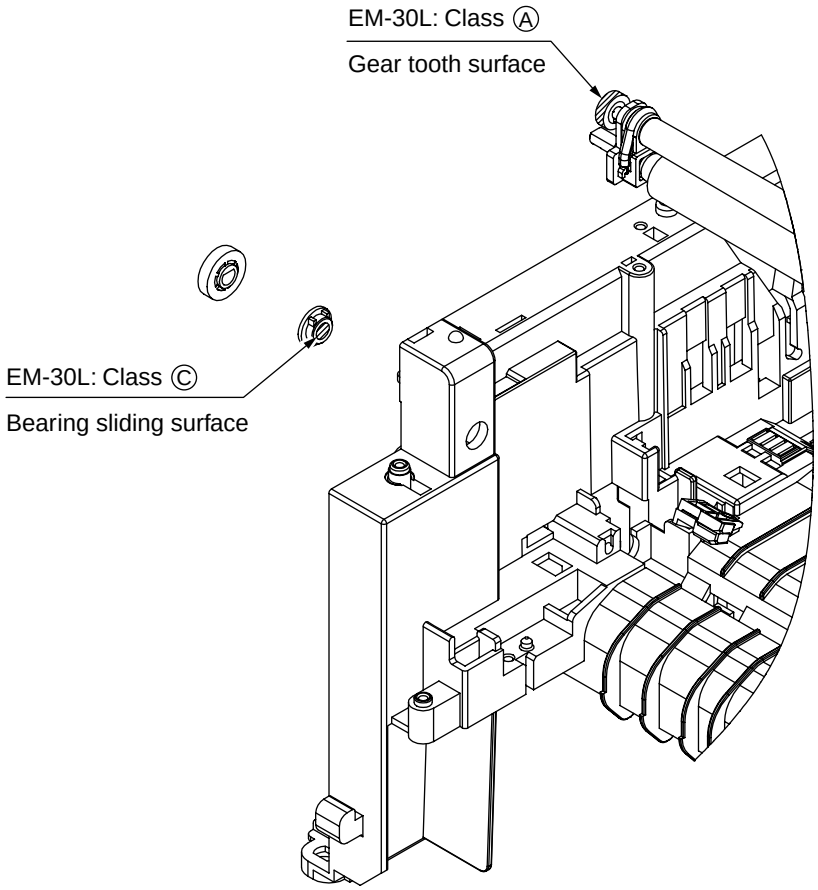
③-3 Rear-Cover-Assy



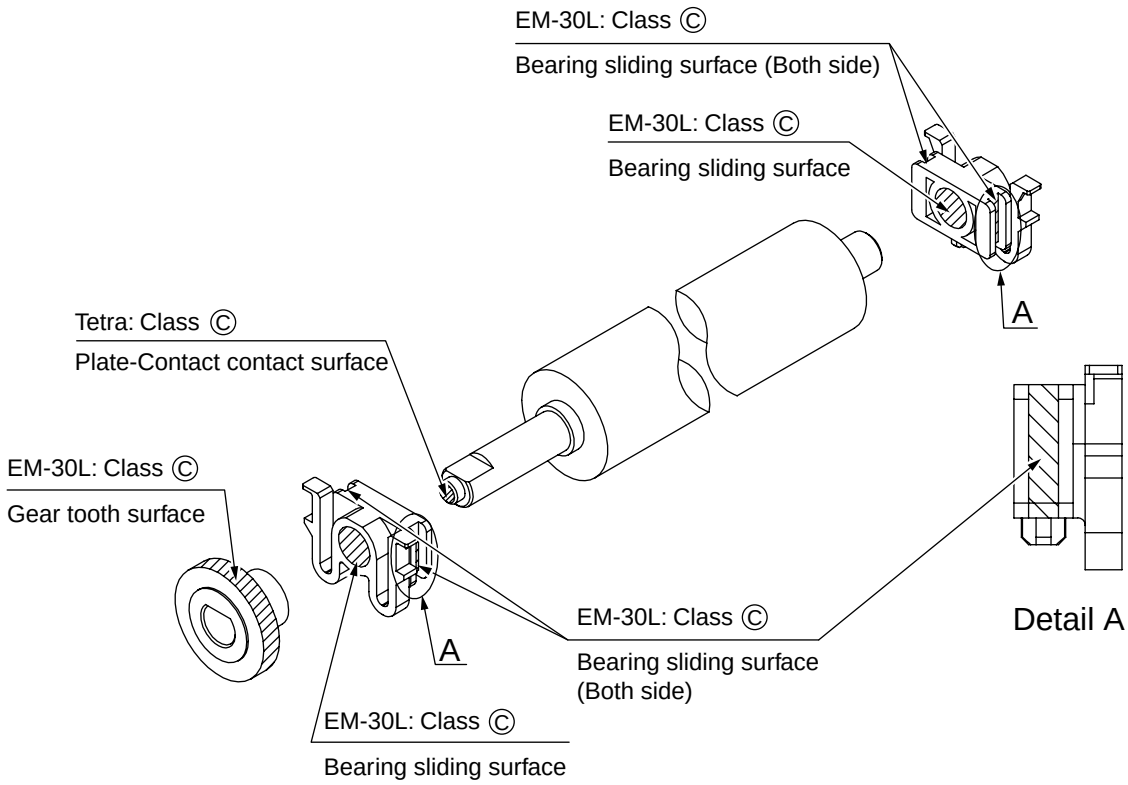
④-1 Roller-Regist



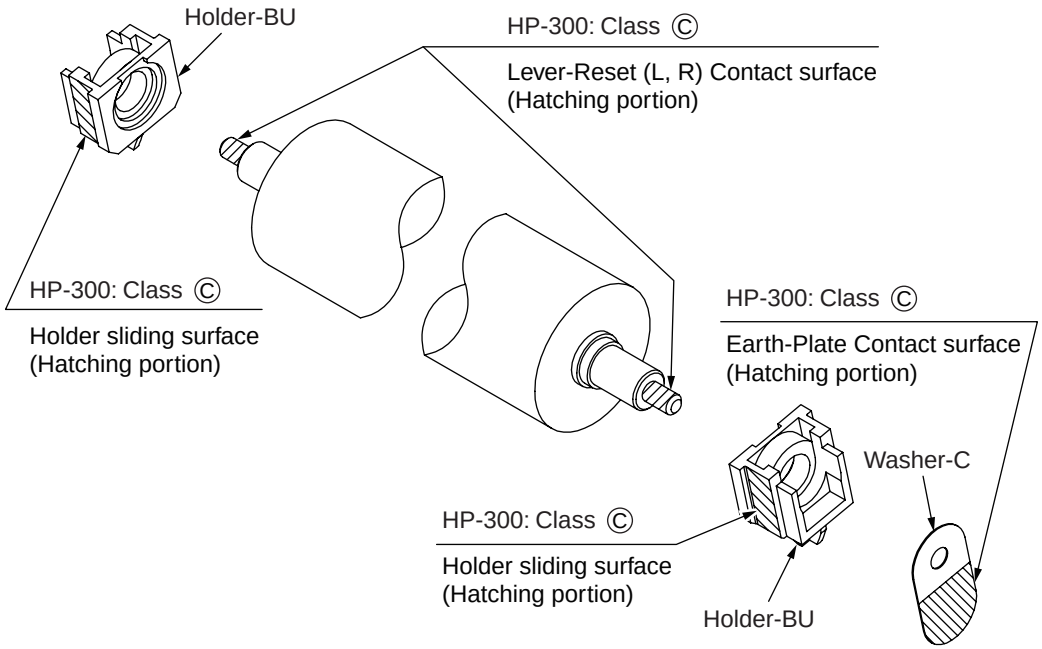
④-2 Roller-Regist



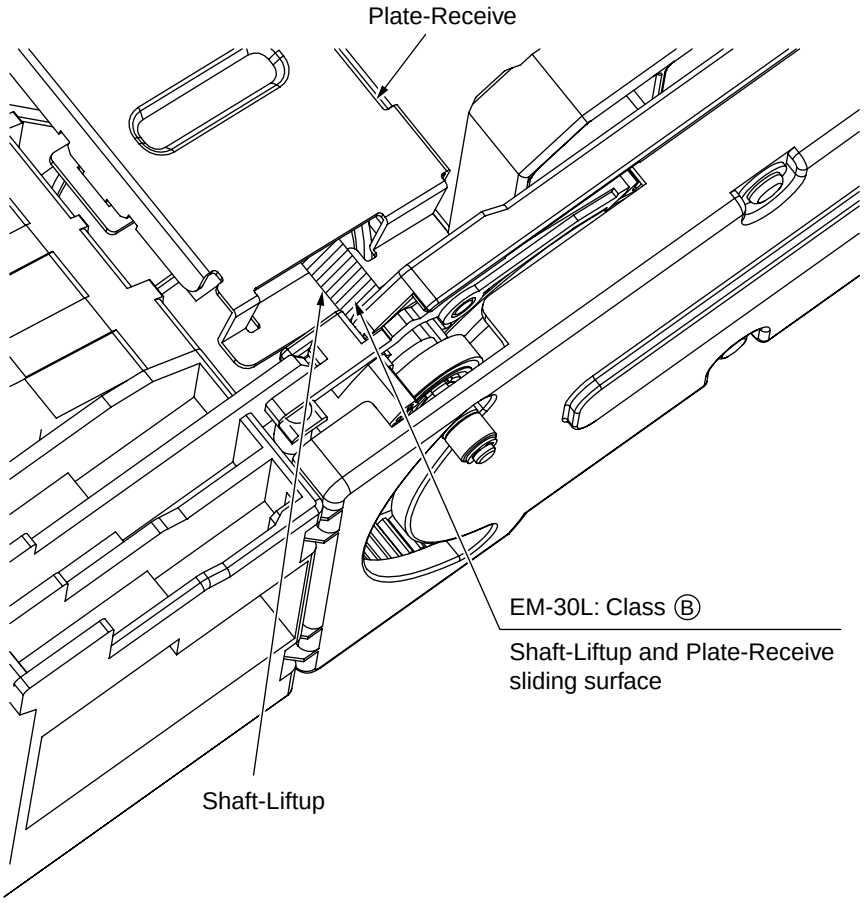
⑤ Roller-Transfer

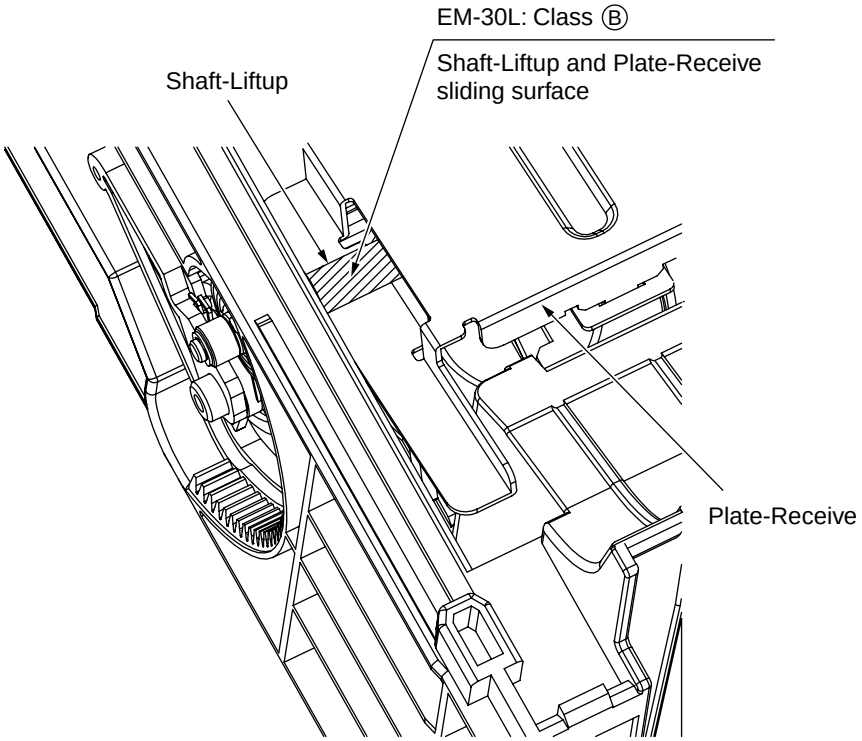


⑥ Roller-Backup



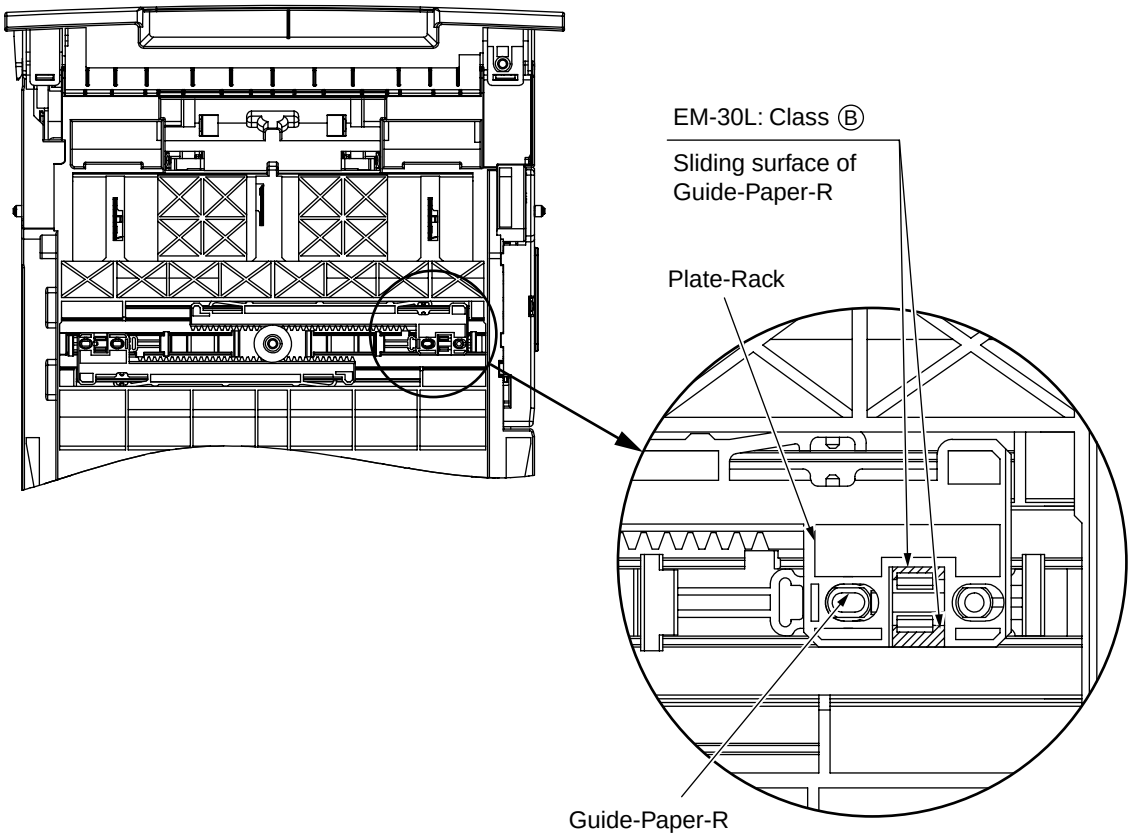
⑦-1 Paper cassette



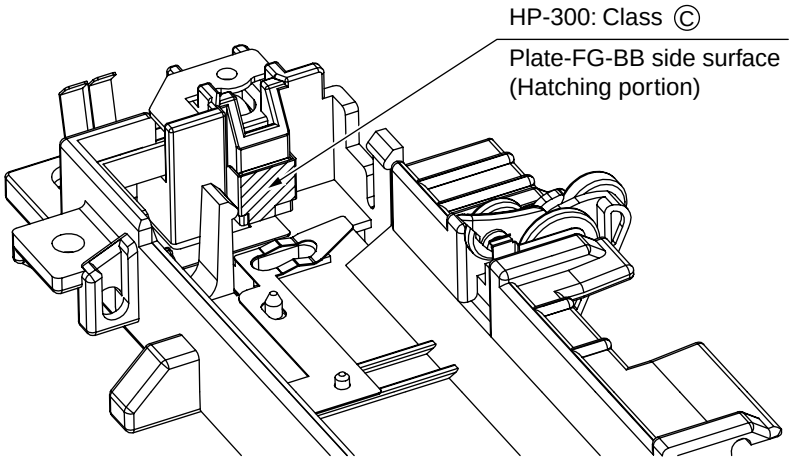


⑦-2 Paper Cassette

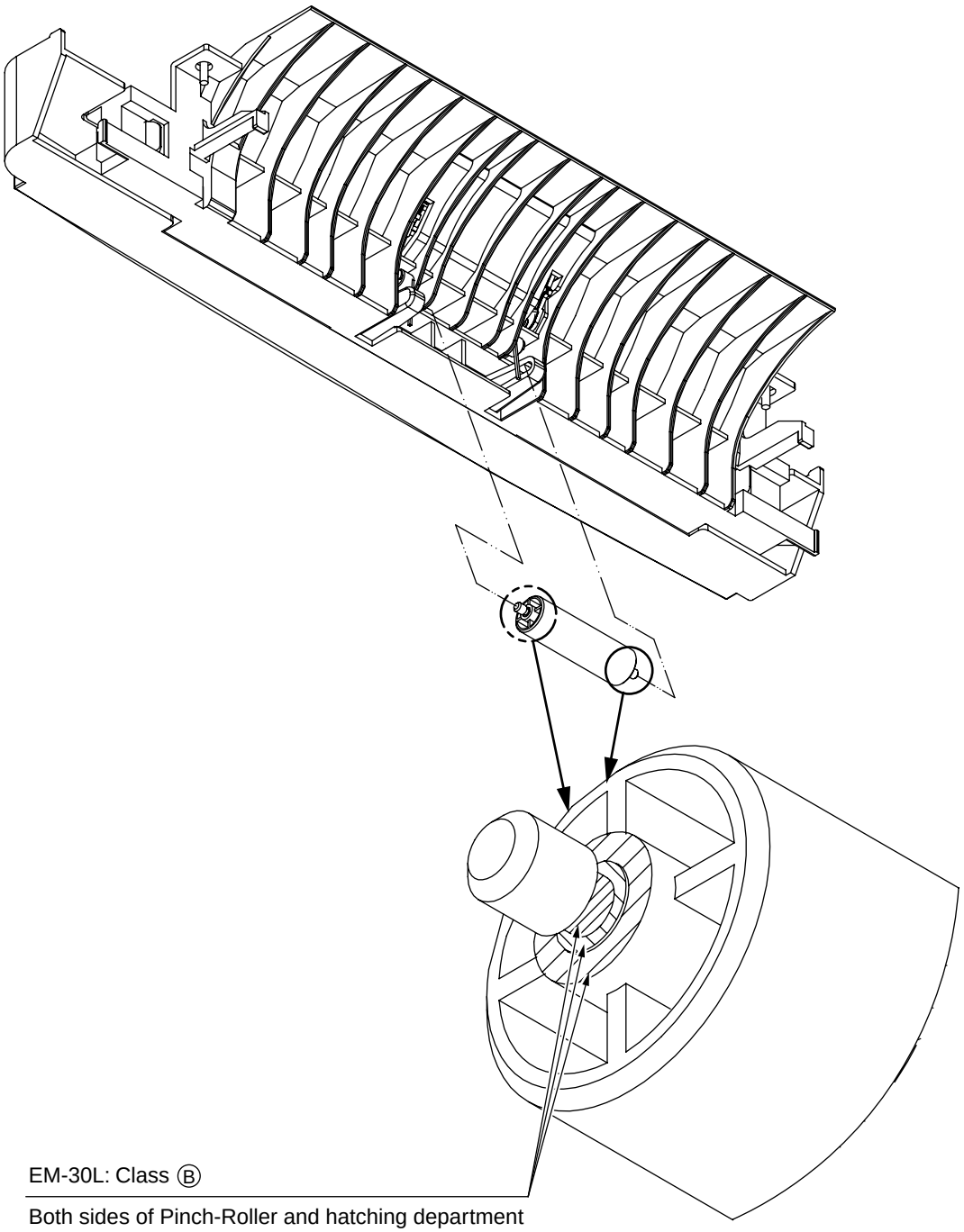
It's only apply to 530 sheets tray. (Needless for 250 sheets tra7)



⑧ Fuser-Assy



⑨ Front-Guide-Assy



EM-30L: Class Ⓑ

Both sides of Pinch-Roller and hatching department and ditch of shaft (Two places of both sides).

4. ADJUSTMENT

This chapter provides explains relating to the adjustment that is necessary while replacing part. Adjustment is performed by modifying the value of parameter that is set on the EEPROM of main PCB board. Parameter can be set by key operation that is from the operator panel. There are 3 kinds of maintenance mode (menu) on this printer. While replacing part it is need to choose one of the mode.

4.1 Category and function of maintenance mode

- Maintenance mode can be divided into User maintenance mode that is released to user, Engine Maintenance Mode and System Maintenance Mode that are not released to user but for the only use of maintenance personnel.
- For renewing each category, push the button of "MENU ▲" and "MENU ▼". After renewing the last category, it returns to the initial category.
- If want the displayed function to be effective, push the "SETUP" button.
- For terminating the mode that is in category displaying, push the key of "ON LINE" and return to operation mode.

4.1.1 User maintenance mode (Administrator Menu)

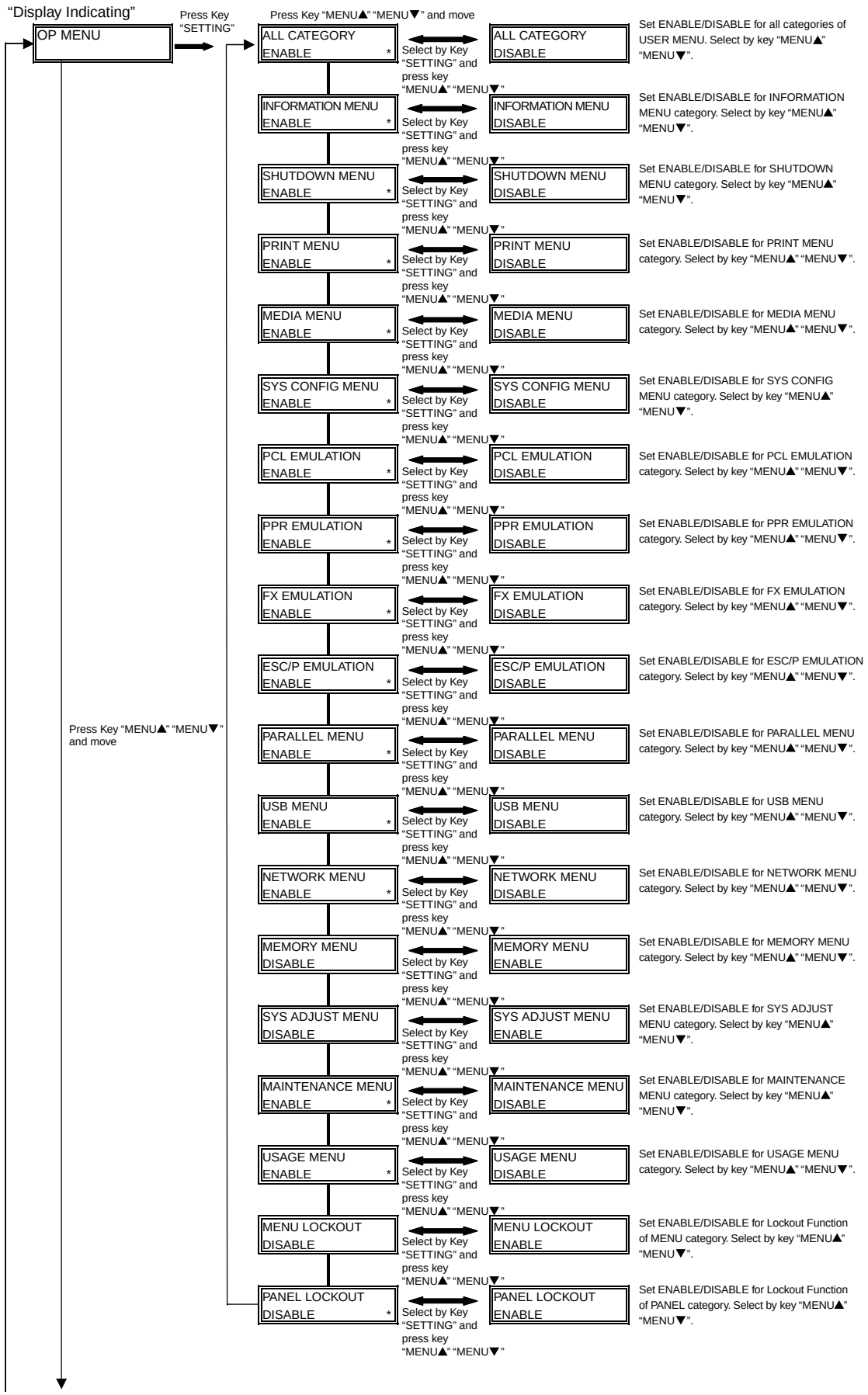
For Administrator Menu, push the button of "SETUP" and power Switch simultaneously.
After the category has been displayed, let go of the button "SETUP".
Administrator Menu has the following function.

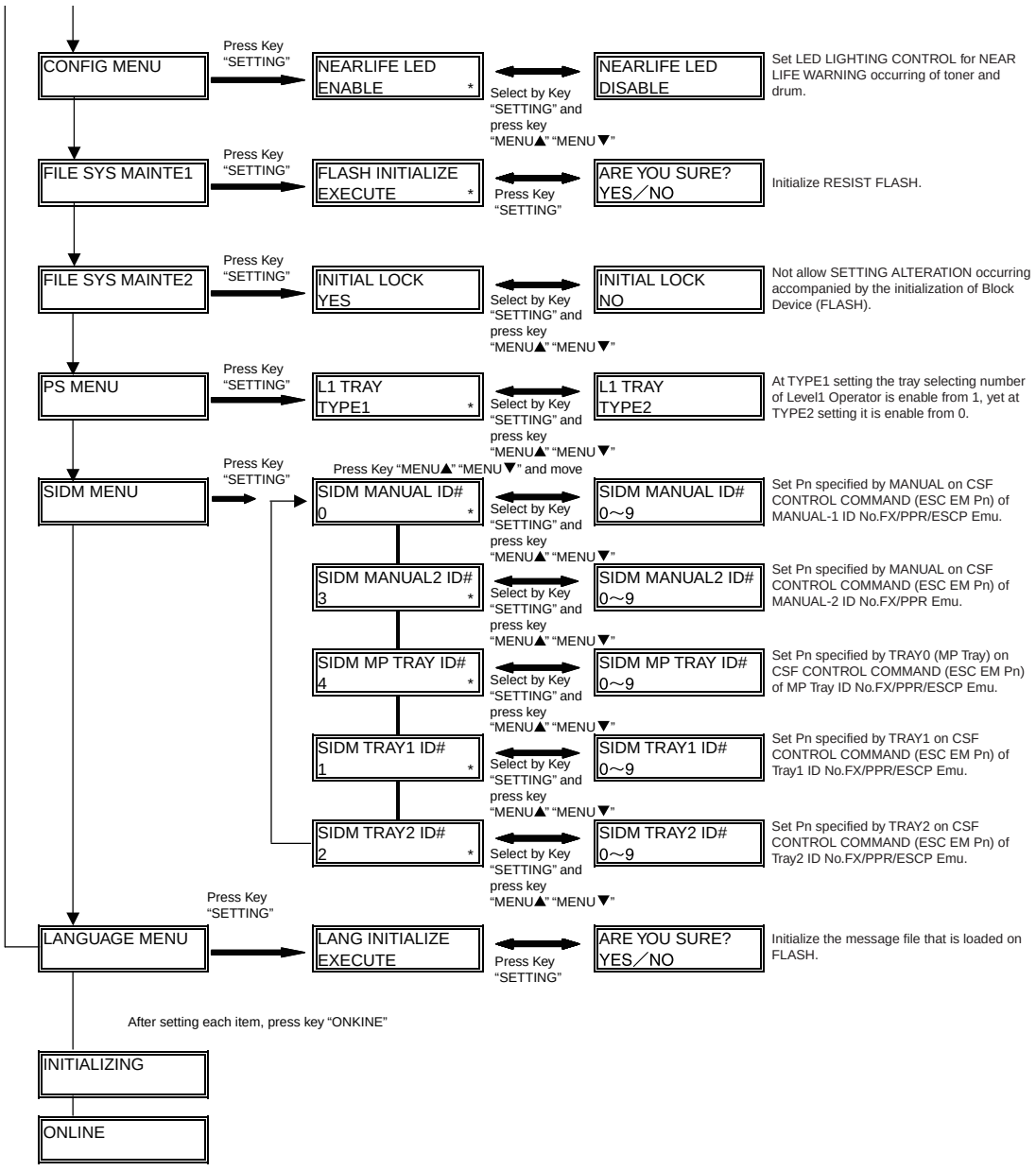
Category	Operation panel display		Default value	Function * Only English is supported for panel display
	Setting item (Upper case)	Setting item (Lower case)		
OP MENU	ALL CATEGORY	ENABLE DISABLE	*	Sets category ALL Enable/Disable of User Menu. If set to invalidation, user menu wont to be display. The following setting item is not displayed if it is invalid. When doing panel lock, must invalidate this menu.
	INFORMATION MENU	ENABLE DISABLE	*	ISetting validation / Invalidation of INFORMATION MENU category. If invalidate it the INFORMATION MENU category of user menu is not displayed.
	SHUTDOWN MENU	ENABLE DISABLE	*	Set Category SHUTDOWN MENU Enable/Disable. Set to Disable, Category SHUTDOWN MENU of User Menu is not displayed.
	PRINT MENU	ENABLE DISABLE	*	Set Category PRINT MENU Enable/Disable. Set to Disable, Category PRINT MENU of User Menu is not displayed.
	MEDIA MENU	ENABLE DISABLE	*	Set Category MEDIA MENU Enable/Disable. Set to Disable, Category MEDIA MENU of User Menu is not displayed.
	SYS CONFIG MENU	ENABLE DISABLE	*	Set Category SYSTEM CONFIG MENU Enable/ Disable. Set to Disable, Category SYSTEM CONFIG MENU OF User Menu is not displayed.
	PCL EMULATION	ENABLE DISABLE	*	Set Category PCL EMULATION MENU Enable/ Disable. Set to Disable, Category PCL EMULATION MENU of User Menu is not displayed.
	PPR EMULATION	ENABLE DISABLE	*	Set Category PPR EMULATION MENU Enable/ Disable. Set to Disable, Category PPR EMULATION MENU of User Menu is not displayed. Except Japan Oriented. [Display Condition] "SYSTEM MAINTENANCE"-"PERSONALITY"-"IBM PPR III XL" is ENABLE.

Category	Operation panel display		Default value	Function * Only English is supported for panel display
	Setting item (Upper case)	Setting item (Lower case)		
OP MENU	FX EMULATION	ENABLE DISABLE	*	Set Category FX EMULATION MENU ENABLE/ DISABLE. Set to DISABLE, Category FX EMULATION MENU of User Menu is not displayed. Except Japan Oriented. [Display Condition] "SYSTEM MAINTENANCE"-"PERSONALITY"-"EPSON FX" is ENABLE.
	ESC/P EMULATION	ENABLE DISABLE	*	Set Category ESC/P MENU ENABLE/DISABLE. Set to DISABLE, Category ESC/P MENU of User Menu is not displayed. Only displayed as Japan domestic oriented. [Display Condition] "SYSTEM MAINTENANCE"-"PERSONALITY"-"ESC/P" is ENABLE.
	PARALLEL MENU	ENABLE DISABLE	*	Set Category PARALLEL MENU ENABLE/DISABLE. Set to DISABLE, Category PARALLEL MENU of User Menu is not displayed.
	USB MENU	ENABLE DISABLE	*	Set Category USB MENU ENABLE/DISABLE. Set to DISABLE, Category USB MENU of User Menu is not displayed.
	NETWORK MENU	ENABLE DISABLE	*	Set Category NETWORK MENU ENABLE/DISABLE. Set to DISABLE, Category NETWORK MENU of User Menu is not displayed. [Display Condition] NIC full assembled
	MEMORY MENU	ENABLE DISABLE	*	Set Category MEMORY MENU ENABLE/DISABLE. Set to DISABLE, Category MEMORY MENU OF User Menu is not displayed.
	SYS ADJUST MENU	ENABLE DISABLE	*	Set Category SYS ADJUST MENU ENABLE/ DISABLE. Set to DISABLE, Category SYS ADJUST MENU of User Menu is not displayed.
	MAINTENANCE MENU	ENABLE DISABLE	*	Set Category MAINTENANCE MENU ENABLE/ DISABLE. Set to DISABLE, Category MAINTENANCE MENU of User Menu is not displayed.
	USAGE MENU	ENABLE DISABLE	*	Set Category USAGE MENU ENABLE/DISABLE. Set to DISABLE, Category USAGE MENU of User Menu is not displayed.
	MENU LOCKOUT	ENABLE DISABLE	*	Set Function MENU LOCKOUT ENABLE/DISABLE. Set to DISABLE, Category PASSWORD, Category CHANGE PASSWORD of User Menu is not displayed. The Initial Value of PASSWORD is "aaaa".
	PANEL LOCKOUT	ENABLE DISABLE	*	Set Function PANEL LOCKOUT ENABLE/DISABLE. Set to ENABLE, on the panel only "ONLINE" switch is ENABLE, it is not able to display MENU.
CONFIG MENU	NEARLIFE LED	ENABLE DISABLE	*	Set LED ILLUMINATION CONTROL at the occurrence of NEAR LIFE WARNING of toner and drum. When it is ENABLE, Attention LED illuminating. When it is DISABLE, Attention LED non-illuminating. Once it became life warning error, the status of temporary retrieving as the cover opening or closing (LIFE WARNING) is excluded.

Category	Operation panel display		Default value	Function * Only English is supported for panel display
	Setting item (Upper case)	Setting item (Lower case)		
FILE SYS MAINTE1	FLASH INITIALIZE	EXECUTE	-	Initialize resident FLASH. Press Enter switch then the following confirming message is displayed. ARE YOU SURE? EXECUTE OR NOT? YES / NO YES / NO If NO is chosen, it returns to the previous menu display. If YES is chosen, it reboots automatically and executes the initialization of Flash Memory. [Display condition] "ADMIN MENU"-"FILE SYS MAINTE2"-"INITIAL LOCK" is NO.
FILE SYS MAINTE2	INITIAL LOCK	YES NO	*	Do not allow to modify setting accompanied by the initialization of Block Device (FLASH). If set this menu to YES, item "ADMIN MENU", "FILE SYS MAINTE1" is not displayed on the operation panel. [Display condition] "PRINT ACCUMULATING"-"ACCUMULATING RESULT PRINT" of User Menu is DISABLE.
PS MENU	L1 TRAY	TYPE1 TYPE2	*	As setting TYPE 1, the selecting number of level 1 operator tray is enable from 1, yet it is from 0 as setting TYPE 2, Only B430/B440 series is displayed.
SIDM MENU	SIDM MANUAL ID#	0 ~ 2 ~ 9	*J *E	Set Pn specified by MANUAL in CSF CONTROL CONMENT OF MANUAL-1 ID No.FX/PPR/ESCP Emu(ESC EM Pn). Default value: Japan oriented is "0", Except Japan oriented is "2".
	SIDM MANUAL 2 ID#	0 ~ 3 ~ 9	*	Set Pn specified by MANUAL in CSF CONTROL CONMENT OF MANUAL-2 ID No.FX/PPR/ESCP Emu(ESC EM Pn).
	SIDM MP TRAY ID#	0 ~ 4 ~ 9	*	Set Pn specified by TRAYO (mp Tray) in the MP Tray ID No. FX/PPR Emu (ESC EM Pn). Only B430/B440 series is displayed.
	SIDM TRAY1 ID#	0 1 ~ 9	*	Set Pn specified by TRAY 1 in CSF CONTROL DEMMAND of Tray 1 ID No. FX/PPR/ESCP Emu (ESC EM Pn).
	SIDM TRAY2 ID#	0 ~ 2 ~ 5 ~ 9	*J *E	Set Pn specified by TRAY 1 in CSF CONTROL DEMMAND (ESC EM Pn) of Tray 2 ID No.FX/PPR/ ESCP Emu. Default Value: Japan oriented is "2", Except Japan oriented is 5. [Display condition] Tray 2 implementation
LANGUAGE MENU	LANG INITIALIZE	EXECUTE	-	Initialize (Delete) LED message file that is loaded on FLASH. Press Enter switch then the following message is displayed. ARE YOU SURE? YES / NO If NO is selected, return to original MENU display. If YES is selected, immediately remove the MENU and starts to delete operation after reboot. Only support Multi-language model.

• User maintenance mode menu chart


"Display Indicating"
Press Key "SETTING"
Press Key "MENU▲" "MENU▼" and move
OP MENU
ALL CATEGORY ENABLE *
ALL CATEGORY DISABLE
Set ENABLE/DISABLE for all categories of USER MENU. Select by key "MENU▲" "MENU▼".
INFORMATION MENU ENABLE *
INFORMATION MENU DISABLE
Set ENABLE/DISABLE for INFORMATION MENU category. Select by key "MENU▲" "MENU▼".
SHUTDOWN MENU ENABLE *
SHUTDOWN MENU DISABLE
Set ENABLE/DISABLE for SHUTDOWN MENU category. Select by key "MENU▲" "MENU▼".
PRINT MENU ENABLE *
PRINT MENU DISABLE
Set ENABLE/DISABLE for PRINT MENU category. Select by key "MENU▲" "MENU▼".
MEDIA MENU ENABLE *
MEDIA MENU DISABLE
Set ENABLE/DISABLE for MEDIA MENU category. Select by key "MENU▲" "MENU▼".
SYS CONFIG MENU ENABLE *
SYS CONFIG MENU DISABLE
Set ENABLE/DISABLE for SYS CONFIG MENU category. Select by key "MENU▲" "MENU▼".
PCL EMULATION ENABLE *
PCL EMULATION DISABLE
Set ENABLE/DISABLE for PCL EMULATION category. Select by key "MENU▲" "MENU▼".
PPR EMULATION ENABLE *
PPR EMULATION DISABLE
Set ENABLE/DISABLE for PPR EMULATION category. Select by key "MENU▲" "MENU▼".
FX EMULATION ENABLE *
FX EMULATION DISABLE
Set ENABLE/DISABLE for FX EMULATION category. Select by key "MENU▲" "MENU▼".
ESC/P EMULATION ENABLE *
ESC/P EMULATION DISABLE
Set ENABLE/DISABLE for ESC/P EMULATION category. Select by key "MENU▲" "MENU▼".
Press Key "MENU▲" "MENU▼" and move
PARALLEL MENU ENABLE *
PARALLEL MENU DISABLE
Set ENABLE/DISABLE for PARALLEL MENU category. Select by key "MENU▲" "MENU▼".
USB MENU ENABLE *
USB MENU DISABLE
Set ENABLE/DISABLE for USB MENU category. Select by key "MENU▲" "MENU▼".
NETWORK MENU ENABLE *
NETWORK MENU DISABLE
Set ENABLE/DISABLE for NETWORK MENU category. Select by key "MENU▲" "MENU▼".
MEMORY MENU DISABLE
MEMORY MENU ENABLE
Set ENABLE/DISABLE for MEMORY MENU category. Select by key "MENU▲" "MENU▼".
SYS ADJUST MENU DISABLE
SYS ADJUST MENU ENABLE
Set ENABLE/DISABLE for SYS ADJUST MENU category. Select by key "MENU▲" "MENU▼".
MAINTENANCE MENU ENABLE *
MAINTENANCE MENU DISABLE
Set ENABLE/DISABLE for MAINTENANCE MENU category. Select by key "MENU▲" "MENU▼".
USAGE MENU ENABLE *
USAGE MENU DISABLE
Set ENABLE/DISABLE for USAGE MENU category. Select by key "MENU▲" "MENU▼".
MENU LOCKOUT DISABLE
MENU LOCKOUT ENABLE
Set ENABLE/DISABLE for Lockout Function of MENU category. Select by key "MENU▲" "MENU▼".
PANEL LOCKOUT DISABLE *
PANEL LOCKOUT ENABLE
Set ENABLE/DISABLE for Lockout Function of PANEL category. Select by key "MENU▲" "MENU▼".
Select by Key "SETTING" and press key "MENU▲" "MENU▼"


CONFIG MENU
Press Key "SETTING"
NEARLIFE LED ENABLE *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
NEARLIFE LED DISABLE
Set LED LIGHTING CONTROL for NEAR LIFE WARNING occurring of toner and drum.
FILE SYS MAINTE1
Press Key "SETTING"
FLASH INITIALIZE EXECUTE *
Press Key "SETTING"
ARE YOU SURE? YES／NO
Initialize RESIST FLASH.
FILE SYS MAINTE2
Press Key "SETTING"
INITIAL LOCK YES
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
INITIAL LOCK NO
Not allow SETTING ALTERATION occurring accompanied by the initialization of Block Device (FLASH).
PS MENU
Press Key "SETTING"
L1 TRAY TYPE1 *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
L1 TRAY TYPE2
At TYPE1 setting the tray selecting number of Level1 Operator is enable from 1, yet at TYPE2 setting it is enable from 0.
SIDM MENU
Press Key "SETTING"
Press Key "MENU▲" "MENU▼" and move
SIDM MANUAL ID# 0 *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
SIDM MANUAL ID# 0～9
Set Pn specified by MANUAL on CSF CONTROL COMMAND (ESC EM Pn) of MANUAL-1 ID No.FX/PPR/ESCP Emu.
SIDM MANUAL2 ID# 3 *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
SIDM MANUAL2 ID# 0～9
Set Pn specified by MANUAL on CSF CONTROL COMMAND (ESC EM Pn) of MANUAL-2 ID No.FX/PPR Emu.
SIDM MP TRAY ID# 4 *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
SIDM MP TRAY ID# 0～9
Set Pn specified by TRAY0 (MP Tray) on CSF CONTROL COMMAND (ESC EM Pn) of MP Tray ID No.FX/PPR/ESCP Emu.
SIDM TRAY1 ID# 1 *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
SIDM TRAY1 ID# 0～9
Set Pn specified by TRAY1 on CSF CONTROL COMMAND (ESC EM Pn) of Tray1 ID No.FX/PPR/ESCP Emu.
SIDM TRAY2 ID# 2 *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
SIDM TRAY2 ID# 0～9
Set Pn specified by TRAY2 on CSF CONTROL COMMAND (ESC EM Pn) of Tray2 ID No.FX/PPR/ESCP Emu.
Press Key "SETTING"
LANGUAGE MENU
LANG INITIALIZE EXECUTE
Press Key "SETTING"
ARE YOU SURE? YES／NO
Initialize the message file that is loaded on FLASH.
After setting each item, press key "ONKINE"
INITIALIZING
ONLINE

4.1.2 System maintenance mode (System maintenance menu)

Note! This mode is only used by maintenance personnel; it is not released to the end user.

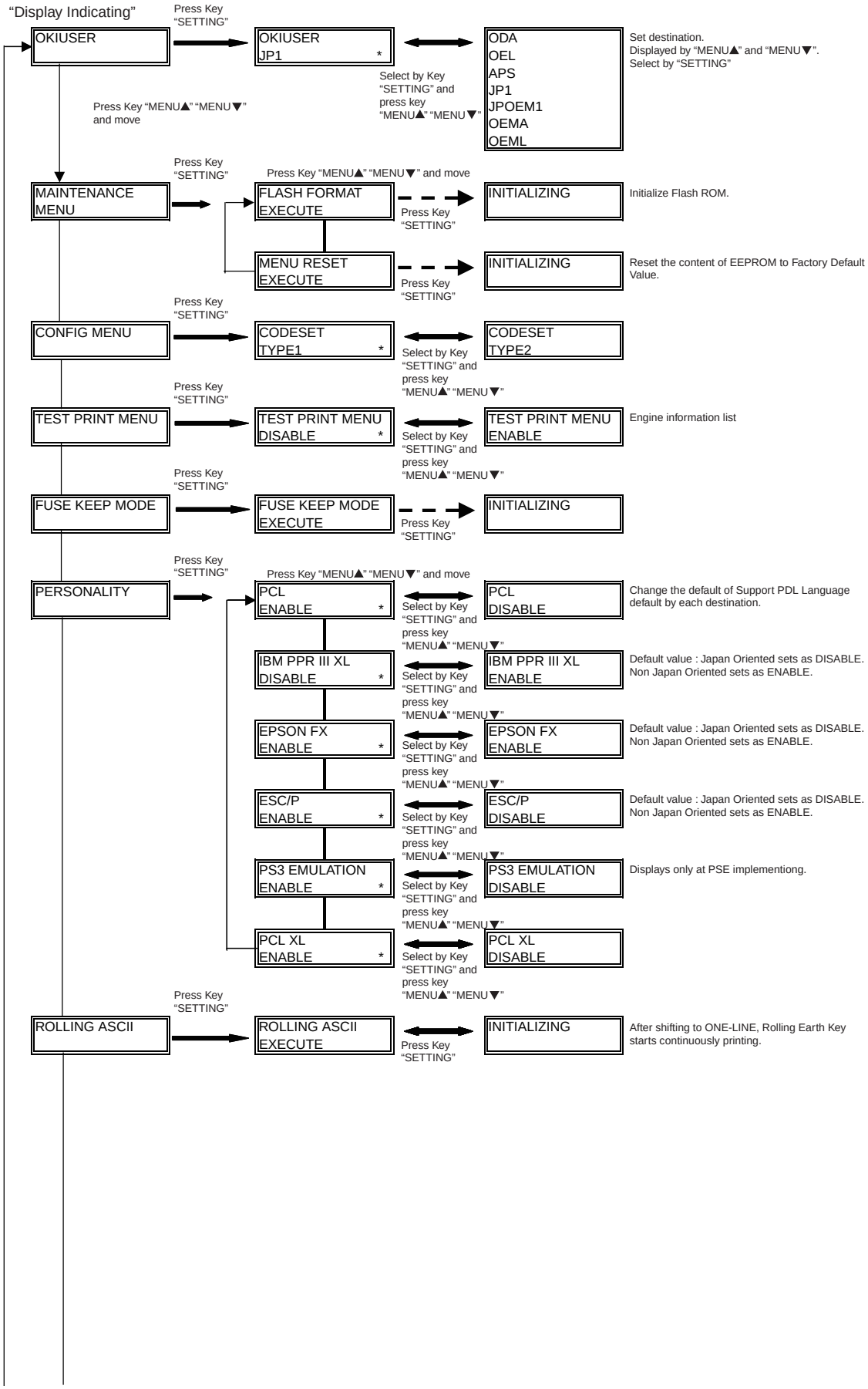
For System Maintenance Menu, hold down the "MENU ▲" and "MENU ▼" button and turn on the power switch. After the Category has been displayed, let go of the "MENU ▲" and "MENU ▼" button.

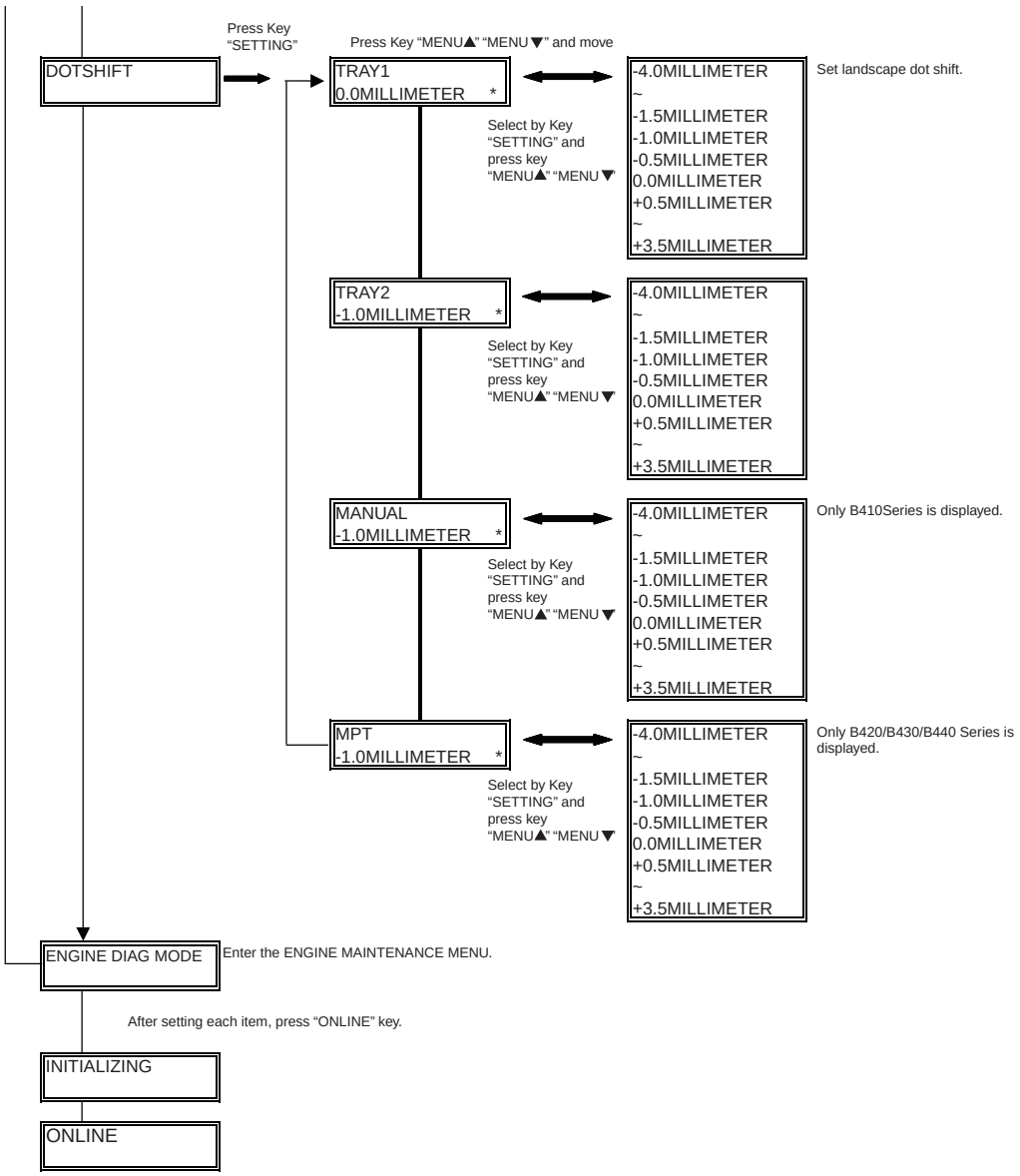
Category	Operation panel display		Default value	Function * Only English is supported for panel display
	Setting item (Upper case)	Setting item (Lower case)		
OKIUSER	OKIUSER	ODA OEL APS JP1 JPOEM1 OEMA OEML	*	Set the destination. JPOEM1: Japan Oriented OEM OEMA: Overseas OEM for A4 default OEML: Overseas OEM for Letter default After passing the MENU, it reboots automatically. If the Japanese font exist, JP1 is default.
MAINTENANCE MENU	FLASH FORMAT	EXECUTE	-	Initialize Flash ROM. After executing it passes the MENU. The format of Flash Device that is implemented on resident (on board) starts.
	MENU RESET	EXECUTE	-	Reset the EEPROM content to the (Factory Default) setting value . After the setting alteration, it reboots automatically. ※ Part of special item is not initialized.
CONFIG MENU	CODESET	TYPE1 TYPE2	*	This MENU displays as all destination. TYPE1: Non display of Russian / Grace TYPE2: Display Russian / Grace. After passing the MENU, it reboots automatically. For destination of OEL/APS/OEMA, TYPE2 is default value. For other destinations, TYPE1 is default value.
TEST PRINT MENU	TEST PRINT MENU	ENABLE DISABLE	*	Switch between whether to display ENGINE INFORMATION that is on the INFORMATION MENU Category of USER MENU. If this item is DISABLE, ENGINE INFORMATION is not often displayed.
FUSE KEEP MODE	FUSE KEEP MODE	EXECUTE	-	While press ENTER Key the command is send from CU to PU and then it becomes ONLINE. Replace the consumable by the new one and check the operation as the power ON. (At this moment, the fuser of new consumable is not cut and the operation count is not added to the value of old consumable. While turn the power OFF the check mode is terminated. Till the next time of power ON it is DISABLE.

Category	Operation panel display		Default value	Function * Only English is supported for panel display
	Setting item (Upper case)	Setting item (Lower case)		
PERSONALITY	PCL	ENABLE DISABLE	*	Change the default of Support PDL Language for each destination. The PDL Language that is DISABLE in this MWNU is not displayed on the OP MENU of EMULATE and Administrator MENU of User Menu. (About "PCL XL", because it does not have specified menu, no appearance change is shown even at DISABLE.) As receiving the printing data of DISABLE PDL Language, it displays INVALID DATA and discards the received data. In the case that set the Japan Oriented "IBM PPR III XL" and "EPSON FX" as ENABLE, the operation is not guaranteed. "PS3 EMU" is only displayed at PSE implementation. It means Read Only While "PCL" can not be set as DISABLE. (Normally, it is used by ENABLE. Even set as DISABLE it still process received data. Default Value: For Japan Oriented equipment sets "IBM PPR" and "EPSON FX" as DISABLE, yet "ESC/P" as ENABLE. For Non Japan Oriented equipment sets "IBM PPR" and "EPSON FX" as ENABLE, yet "ESC/P" as DISABLE.
	IBM PPR III XL	ENABLE DISABLE	*E *J	
	EPSON FX	ENABLE DISABLE	*E *J	
	ESC/P	ENABLE DISABLE	*J *E	
	PS3 EMULATION	ENABLE DISABLE	*	
	PCL XL	ENABLE DISABLE	*	
ROLLING ASCII	ROLLING ASCII	EXECUTE		Set PRINTING Rolling ASCII as continuously printing. Set Rolling ASCII Paten as continuously printing. Press "ENTEN" switch at this menu displaying. After EXECUTE displayed in the lower case, press "ENTER" switch to settle the execution. Press "ON-LINE" switch to initialize and then continuously printing is available. For the termination of this mode, it is to press "ON-LINE" switch and wait for printing stopped, and then shut down power or press "CANCEL" switch. After this operation it can not return to any other maintenance mode.
DOTSHIFT	TRAY1	-4.0MILLIMETER ~ -1.5MILLIMETER -1.0MILLIMETER -0.5MILLIMETER 0.0MILLIMETER +0.5MILLIMETER ~ +3.5MILLIMETER	*	Set landscape dot Shift of Tray 1 while printing. In this area, even EEPROM RESET such as ROM Ver.UP is not initialized.
	TRAY2	-4.0MILLIMETER ~ -1.0MILLIMETER -0.5MILLIMETER 0.0MILLIMETER +0.5MILLIMETER ~ +3.5MILLIMETER	*	Set landscape dot Shift of Tray 1 while printing. Item is displayed even Tray 2 is not implemented. In this area, even EEPROM RESET such as ROM Ver.UP is not initialized.

Category	Operation panel display		Default value	Function * Only English is supported for panel display
	Setting item (Upper case)	Setting item (Lower case)		
DOTSHIFT	MANUAL	-4.0MILLIMETER ~ -1.0MILLIMETER -0.5MILLIMETER 0.0MILLIMETER +0.5MILLIMETER ~ +3.5MILLIMETER	*	Set landscape DOTSHIFT of Manual Slot while printing. Item is displayed even Tray 2 is not implemented. In this area, even EEPROM RESET such as ROM Ver.UP is not initialized. Only B410/B420 Series is displayed.
	MPT	-4.0MILLIMETER ~ -1.0MILLIMETER -0.5MILLIMETER 0.0MILLIMETER +0.5MILLIMETER ~ +3.5MILLIMETER	*	Set landscape DOTSHIFT of MPT while printing. Item is displayed even Tray 2 is not implemented. In this area, even EEPROM RESET such as ROM Ver.UP is not initialized. Only B430/B440 Series is displayed.
ENGINE DIAG MODE			-	Included in Engine Maintenance Menu.

• System maintenance mode menu chart




Press Key "SETTING"
Press Key "MENU▲" "MENU▼" and move
DOTSHIFT
TRAY1
0.0MILLIMETER *
-4.0MILLIMETER
~
-1.5MILLIMETER
-1.0MILLIMETER
-0.5MILLIMETER
0.0MILLIMETER
+0.5MILLIMETER
~
+3.5MILLIMETER
Set landscape dot shift.
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
TRAY2
-1.0MILLIMETER *
-4.0MILLIMETER
~
-1.5MILLIMETER
-1.0MILLIMETER
-0.5MILLIMETER
0.0MILLIMETER
+0.5MILLIMETER
~
+3.5MILLIMETER
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
MANUAL
-1.0MILLIMETER *
-4.0MILLIMETER
~
-1.5MILLIMETER
-1.0MILLIMETER
-0.5MILLIMETER
0.0MILLIMETER
+0.5MILLIMETER
~
+3.5MILLIMETER
Only B410Series is displayed.
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
MPT
-1.0MILLIMETER *
-4.0MILLIMETER
~
-1.5MILLIMETER
-1.0MILLIMETER
-0.5MILLIMETER
0.0MILLIMETER
+0.5MILLIMETER
~
+3.5MILLIMETER
Only B420/B430/B440 Series is displayed.
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
ENGINE DIAG MODE
Enter the ENGINE MAINTENANCE MENU.
After setting each item, press "ONLINE" key.
INITIALIZING
ONLINE

4.1.3 Engine maintenance mode

(1) To enter Engine maintenance mode, hold down the "MENU ▲" and "MENU ▼" button while turn on the power switch. Select "ENGINE DIAG MODE".

(2) The function of this mode is selected from Menu.

(3) The release method of this mode is different by setting.

(4) The following content is included in Engine maintenance mode.

Category (1st Line) (16 Characters)	Item (1st Line) (16 Characters)	Value (2nd Line)	Default	Function	Valid	Save
					-	-
LED HEAD		-16 -15 ~ -1 0 +1 ~ +15	*	Set the drive time of LED Head.	-	-
STRB TIM		0.50 0.54 0.42 0.46	*	Set by the relative value between strobe at 600×1200DPI and strobe at 600×600DPI.	-	-
OPT HEAD		ODD/EVN STEP3	*	In this printer, this setting is not used.	-	-
PRINTPOS		0 mm +0.5mm ~ +3.5mm -4.0mm ~ -0.5mm	*	Set the start position of printing.	-	-
LENSHIFT		0 mm +0.5mm ~ +3.5mm -4.0mm ~ -0.5mm	*	Set the offset of picture elastic (The minor adjustment. of LSYNC cycle).	-	-
DRUM CNT		T nnnnnn	0	Drum Count Total Display Display it on LCD about the total drum-rotating count that is counted by the engine part.	-	-
DRUM CNT		nnnnnn	0	Drum Count display Display it on LCD about the drum-rotating count from drum replacement that is counted by the engine part.	-	-
PAGE CNT		nnnnnn	0	Page Count display Display it on LCD about the total printing page count that is counted by the engine part.	-	-
DOT CNT		T nnnnnn	0	Page DotCount Total display Display it on LCD about the printing DotCount that is counted by the engine part.	-	-
DOT CNT		nnnnnn	0	Page DotCount display Display the DotCount from the new toner cartridge installed till now	-	-

Category (1st Line) (16 Characters)	Item (1st Line) (16 Characters)	Value (2nd Line)	Default	Function	Valid	Save
T1 POS		0 mm +1 mm ~ +7 mm -8 mm ~ -1 mm	*	Set Paper-feeding amount that is from the standard tray. (Paper striking amount setting)	-	-
T2 POS		0 mm +1 mm ~ +7 mm -8 mm ~ -1 mm	*	Set Paper-feeding amount that is from the second tray. (Paper striking amount setting)	-	-
T2 TBL		No. 1 No. 2 No. 3	*	In this printer, this setting is not used.	-	-
EF POS		0 mm +1 mm ~ +7 mm -8 mm ~ -1 mm	*	Set Paper-feeding amount that is from the multipurpose feeder. (Paper striking amount setting)	-	-
EF TBL		No. 1 No. 2 No. 3	*	In this printer, this setting is not used.	-	-
DUPLEX POS		0 mm +1 mm ~ +7 mm -8 mm ~ -1 mm	*	Set Paper-feeding amount that is from the DUPLEX. (Paper striking amount setting)	-	-
CH ADJ		ENABLE DISABLE	*	In this printer, this setting is not used.	-	-
SB2 ADJ		ENABLE DISABLE	*	Set ENABLE/DISABLE of the offset theory of SB2 voltage setting value.	-	-
CH VOLT		-3 -2 -1 0 +1 +2 +3	*	The converting of CH default voltage value (It should reflect both ENABLE/ DISABLE of offset theory of CH voltage setting value.	-	-
SB2 VOLT		-3 -2 -1 0 +1 +2 +3	*	The converting of SB2 default voltage value (It should reflect both ENABLE/ DISABLE of offset theory of voltage setting value	-	-

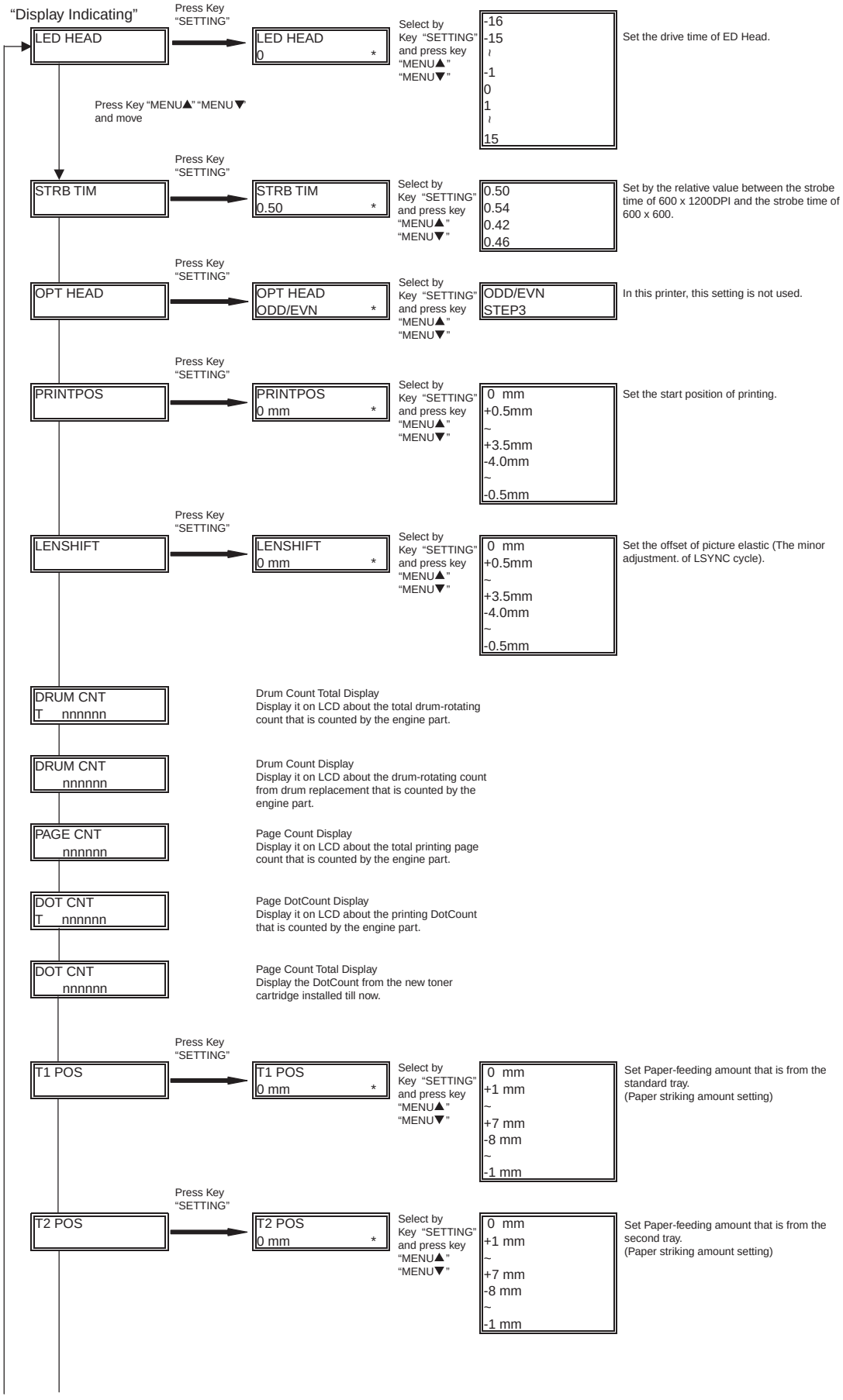
Category (1st Line) (16 Characters)	Item (1st Line) (16 Characters)	Value (2nd Line)	Default	Function	Valid	Save
CH V ADJ		-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5	*	In this printer, this setting is not used.	-	-
CH V MAX		-2 -1 0	*	Maximum CH voltage offset	-	-
CH V MIN		-1 0 +1 +2	*	Minimum CH voltage offset	-	-
TR1 CRNT		-3 -2 -1 0 +1 +2 +3	*	Current value converting of TR1_I at TR resist lead	-	-
0X MODE		ENABLE DISABLE	*	[A/C Zero Cross Phase Control ENABLE/DISABLE] Select whether operate phase control.	-	-
0X TC		AUTO FIX	*	[TC Fixed/Varied selection] Select Tc value (Zero cross signal period) that is used for parameter calculating of phase control.	-	-
0X TP		AUTO FIX	*	[TP Fixed/Varied selection] Select Tp value (Zero cross signal pulse width) that is used for parameter calculating of phase control. TC varied mode: Use calculated value TP fixed mode: Use fixed value (1ms)	-	-

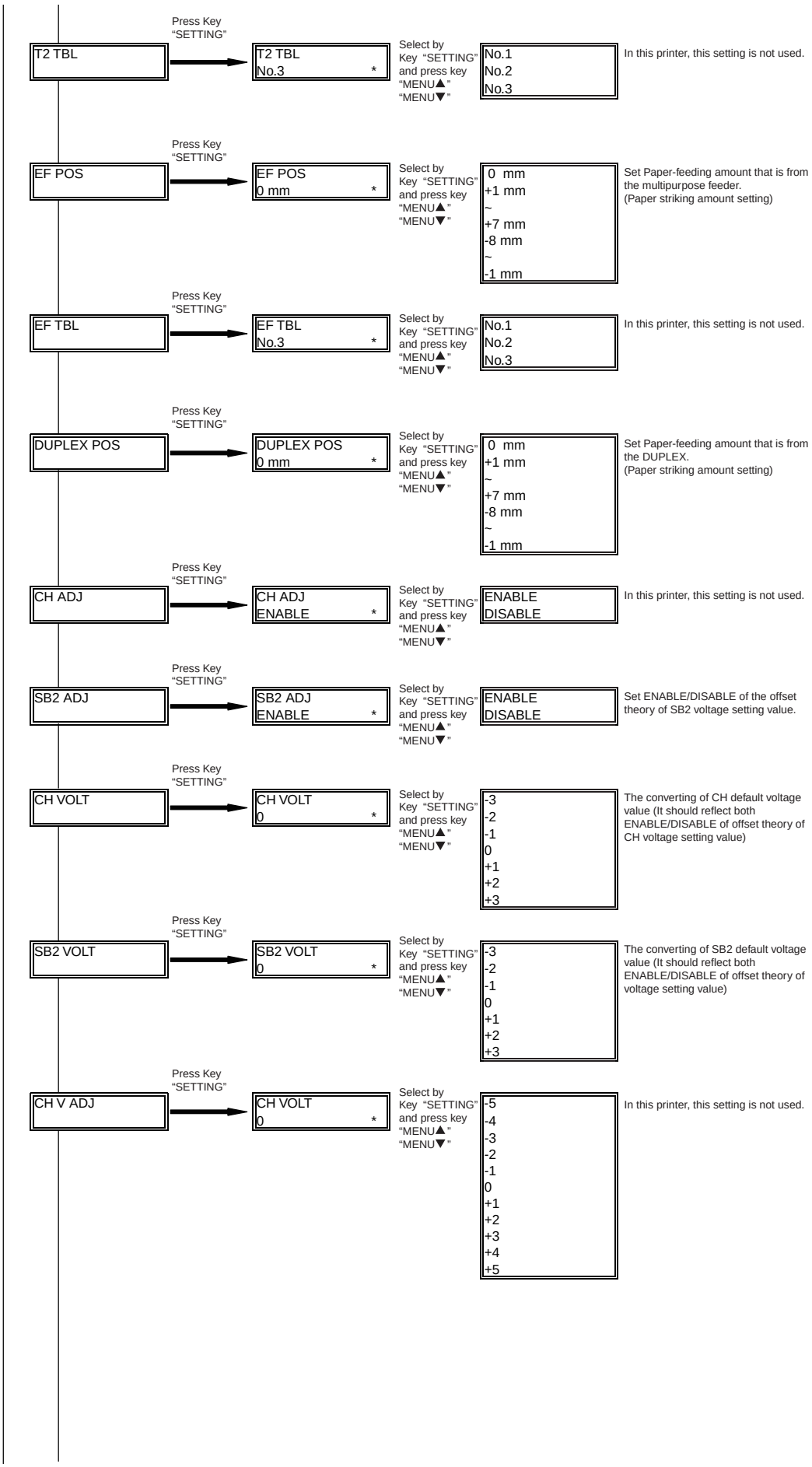
Category (1st Line) (16 Characters)	Item (1st Line) (16 Characters)	Value (2nd Line)	Default	Function	Valid	Save
0X ADJST		0 1 2 3 4 5 6 7 -8 -7 -6 -5 -4 -3 -2 -1	*	[ON DELAY OFFSET] ON DELAY OFFSET TABLE SELECTION At setting HEATON Signal Output Time, set the value that the corresponding table value has been added to the resistor. 0: 0.0ms 1: 0.5ms 2: 1.0ms 3: 1.5ms 4: 2.0ms 5: 2.5ms 6: 3.0ms 7: 3.5ms -8: -4.0ms -7: -3.5ms -6: -3.0ms -5: -2.5ms -4: -2.0ms -3: -1.5ms -2: -1.0ms -1: -0.5ms	-	-
				By ENGINE TEST displaying, press SELECT SW, SUBITEM is displayed on the 1st Line.	-	-
ENGINE TEST	EP TEST	OFF PAPER CONNECT	*	In this printer, this setting is not used.	-	-
	PRT DUTY	1/1 1/10 1/20 1/50	*	Set Duty that is used for Motor Accelerating Test in the factory. Setting as 1/n means that after 1 piece of paper printing, it makes the engine idles away for n-1 piece of paper amount.	-	-
	MODE	00 01 02 ~ FD FE FF	*	The setting is irrevocable because it is used for engine debug mode. If set it out of default (00), the printing stops.	-	-
ENGINE RESET	-	-	-	Reset the following counters that are used in engine part. Drum Total Counter • Drum Counter • Printing Total Page Counter • But, Printing Total Page Counter is only reset for the count under 500. (This limit is not compliant in the case of reset for PJL Command)	-	-

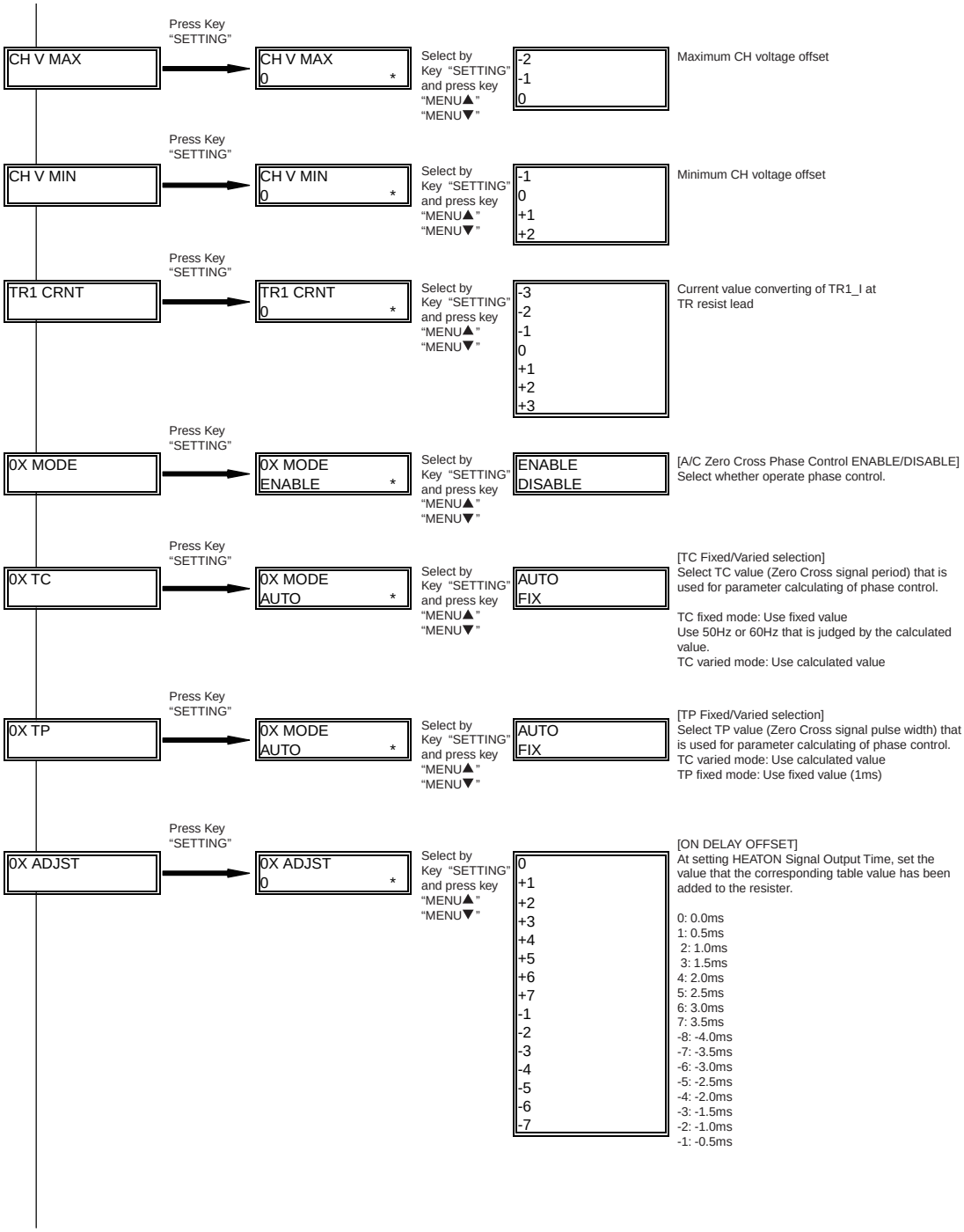
After reset, printer returns to normal operating mode.

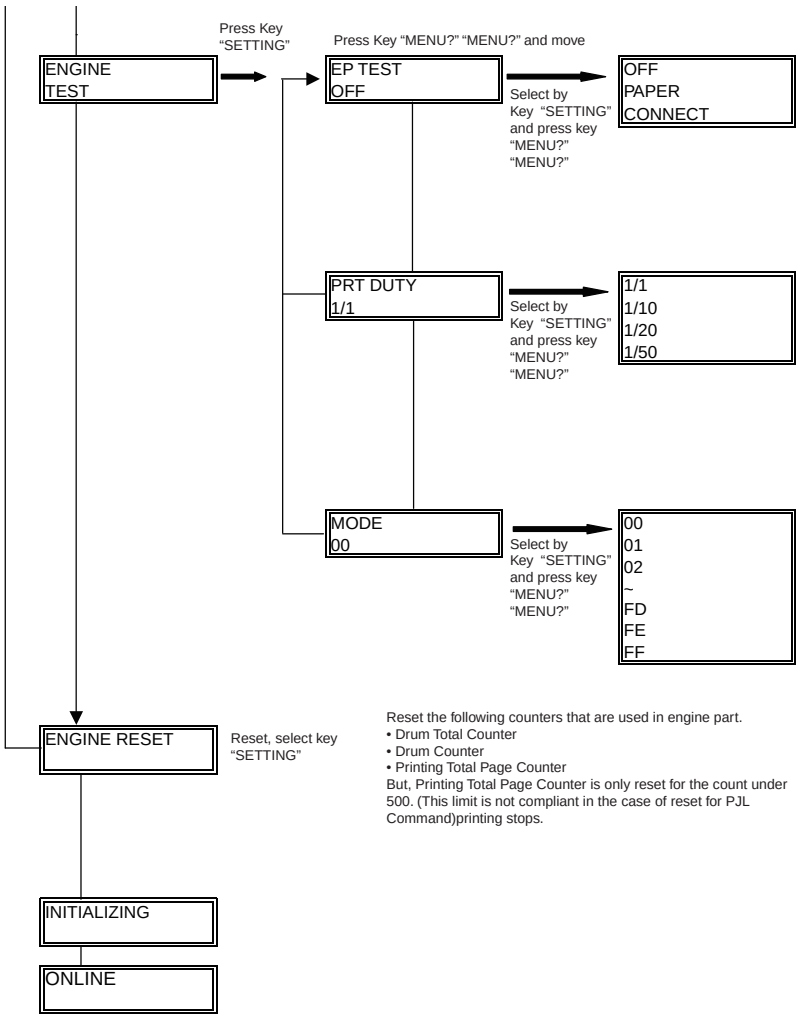
Note! "Start Position Setting of Printing" is only for shipment. Do not change the default value.

- Engine maintenance mode menu chart




T2 TBL
Press Key "SETTING"
T2 TBL
No.3 *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
No.1
No.2
No.3
In this printer, this setting is not used.
EF POS
Press Key "SETTING"
EF POS
0 mm *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
0 mm
+1 mm
~
+7 mm
-8 mm
~
-1 mm
Set Paper-feeding amount that is from the multipurpose feeder.
(Paper striking amount setting)
EF TBL
Press Key "SETTING"
EF TBL
No.3 *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
No.1
No.2
No.3
In this printer, this setting is not used.
DUPLEX POS
Press Key "SETTING"
DUPLEX POS
0 mm *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
0 mm
+1 mm
~
+7 mm
-8 mm
~
-1 mm
Set Paper-feeding amount that is from the DUPLEX.
(Paper striking amount setting)
CH ADJ
Press Key "SETTING"
CH ADJ
ENABLE *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
ENABLE
DISABLE
In this printer, this setting is not used.
SB2 ADJ
Press Key "SETTING"
SB2 ADJ
ENABLE *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
ENABLE
DISABLE
Set ENABLE/DISABLE of the offset theory of SB2 voltage setting value.
CH VOLT
Press Key "SETTING"
CH VOLT
0 *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
-3
-2
-1
0
+1
+2
+3
The converting of CH default voltage value (It should reflect both ENABLE/DISABLE of offset theory of CH voltage setting value)
SB2 VOLT
Press Key "SETTING"
SB2 VOLT
0 *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
-3
-2
-1
0
+1
+2
+3
The converting of SB2 default voltage value (It should reflect both ENABLE/DISABLE of offset theory of voltage setting value)
CH V ADJ
Press Key "SETTING"
CH VOLT
0 *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
-5
-4
-3
-2
-1
0
+1
+2
+3
+4
+5
In this printer, this setting is not used.


CH V MAX
Press Key "SETTING"
CH V MAX 0 *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
-2 -1 0
Maximum CH voltage offset
CH V MIN
Press Key "SETTING"
CH V MIN 0 *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
-1 0 +1 +2
Minimum CH voltage offset
TR1 CRNT
Press Key "SETTING"
TR1 CRNT 0 *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
-3 -2 -1 0 +1 +2 +3
Current value converting of TR1_I at TR resist lead
0X MODE
Press Key "SETTING"
0X MODE ENABLE *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
ENABLE DISABLE
[A/C Zero Cross Phase Control ENABLE/DISABLE]
Select whether operate phase control.
0X TC
Press Key "SETTING"
0X MODE AUTO *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
AUTO FIX
[TC Fixed/Varied selection]
Select TC value (Zero Cross signal period) that is used for parameter calculating of phase control.
TC fixed mode: Use fixed value
Use 50Hz or 60Hz that is judged by the calculated value.
TC varied mode: Use calculated value
0X TP
Press Key "SETTING"
0X MODE AUTO *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
AUTO FIX
[TP Fixed/Varied selection]
Select TP value (Zero Cross signal pulse width) that is used for parameter calculating of phase control.
TC varied mode: Use calculated value
TP fixed mode: Use fixed value (1ms)
0X ADJST
Press Key "SETTING"
0X ADJST 0 *
Select by Key "SETTING" and press key "MENU▲" "MENU▼"
0 +1 +2 +3 +4 +5 +6 +7 -1 -2 -3 -4 -5 -6 -7
[ON DELAY OFFSET]
At setting HEATON Signal Output Time, set the value that the corresponding table value has been added to the resister.
0: 0.0ms
1: 0.5ms
2: 1.0ms
3: 1.5ms
4: 2.0ms
5: 2.5ms
6: 3.0ms
7: 3.5ms
-8: -4.0ms
-7: -3.5ms
-6: -3.0ms
-5: -2.5ms
-4: -2.0ms
-3: -1.5ms
-2: -1.0ms
-1: -0.5ms


Press Key
"SETTING"
Press Key "MENU?" "MENU?" and move
ENGINE
TEST
EP TEST
OFF
Select by
Key "SETTING"
and press key
"MENU?"
"MENU?"
OFF
PAPER
CONNECT
In this printer, this setting is not used.
PRT DUTY
1/1
Select by
Key "SETTING"
and press key
"MENU?"
"MENU?"
1/1
1/10
1/20
1/50
Set Duty that is used for Motor Accelerating Test in the factory.
Setting as 1/n means that after 1 piece of paper printing, it makes the engine idles away for n-1 piece of paper amount.
MODE
00
Select by
Key "SETTING"
and press key
"MENU?"
"MENU?"
00
01
02
~
FD
FE
FF
The setting is irrevocable because it is used for engine debug mode.
If set it out of default (00), the printing stops.
ENGINE RESET
Reset, select key
"SETTING"
Reset the following counters that are used in engine part.
• Drum Total Counter
• Drum Counter
• Printing Total Page Counter
But, Printing Total Page Counter is only reset for the count under 500. (This limit is not compliant in the case of reset for PJL Command)printing stops.
INITIALIZING
ONLINE

4.1.4 Environment mode setting

As environment mode, "NORMAL MODE" MODE1 and "HIGH TEMPERATURE ENVIRONMENT MODE" MODE2 are equipped.
If set this mode to "HIGH TEMPERATURE ENVIRONMENT MODE", at duplex printing, fusing control temperature changes to the lower temperature setting than "NORMAL MODE".
Due to the "HIGH TEMPERATURE ENVIRONMENT MODE" setting, it can be expected that the following problem being improved at duplex printing.

・Wrinkle / Curl / Stacking / Toner peeling of stacking paper due to toner re-depositing phenomenon

At factory default, it is "NORMAL MODE" MODE1.

1. Setting method

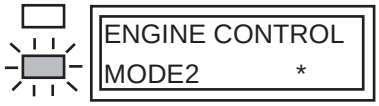
(1) Switch on the power of printer.

(2) After “ON LINE” displayed, open Upper Cover.

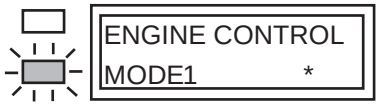
(3) Press [ON LINE] switch for 5 second.

Open the Top Cover by ONLINE and NODATA status, press [ON LINE] switch for 5 second. The following setting information displays on LCD for 2 second. Then it returns to the original display automatically. Attention LED blinking.

・In case of setting converted by MODE1 "NORMAL MODE" status, it changes to MODE2 "HIGH TEMPERATURE ENVIRONMENT MODE".



・In case of setting converted by MODE2 "HIGH TEMPERATURE ENVIRONMENT MODE" status, it changes to MODE1 "NORMAL MODE".



2. Confirming method

※ Confirm by the setting value of the following information of MenuMap (Left 8th of ET information)

"PU version : 00.00.C4 [PI02.08 T200.00.03] ET:xxxxxxx**4**"

Only display at the 2nd Tray implementing

Confirming position

Setting value of each mode
At NORMAL MODE: 0 (Default)
At HIGH TEMPERATURE ENVIRONMENT MODE: 4

4.1.5 EEPROM Initialization

The treatment for EEPROM Initialization at each phenomenon is displayed as Diagram 4-1.

Diagram 4-1 EEPROM Initial Setting Range

No	Phenomenon	CU EEPROM Area						PU EEPROM Area			
		Factory Default Area	User Menu Area	OP Menu Area	Administrator Menu/ System Maintenance Menu Area (*3)		F/W Revision Area	Engine Maintenance Menu Area			
						Brands Area			Drum Counter	Page Counter	Toner Dot Counter
1	User Maintenance Menu EEPROM RESET Operation	–	○	–	–	–	–	–	–	–	–
2	F/W Revision check error at the time of a power on.	–	○	–	○(*4)	–	○	–	–	–	–
3	CU EEPROM area mapping Revision check error at the time of a power on.	○	○	○	○(*4)	–	–	–	–	–	–
4	Brands area check error at the time of a power on. (*1)	○	○	○	○(*4)	○	○	–	–	–	–
5	Engine Maintenance Menu ENGINE RESET Operation	–	–	–	–	–	–	–	○	○(*2)	–
6	PU EEPROM area mapping check error at the time of a power on.	–	–	–	–	–	–	○(*3)	○	○	○
7	System Maintenance Menu EEPROM RESET Operation	–	○	○	○(*4)	–	–	–	–	–	–

(*1) Destination Check is for the operation on the different product (destination) with the previously operated product (destination). It is the reset relying on the recognition regarding the destination change by PJL command and the operation at POWER ON of the new product EEPROM as an error.

(*2) It is reset to 0 limited by Page Count less than 500 pieces. (ENGINE RESET due to PJL Command is not in this limitation.)

(*3) About DOT SHIFT setting menu, even it is also exist in System Maintenance Menu, but because the setting value keeping area is allocated in PU EEPROM AREA, in the case of the item of System Maintenance Menu initialized, DOT SHIFT setting is not initialized. By contraries, in the case of PU EEPROM AREA initialized, DOT SHIFT setting is initialized.

(*4) DOT SHIFT setting should not be initialized.

4.2 Adjustment at part replacement

Adjustment is necessary while replacing the following part.

Replacing part	Adjustment
Main PCB board	EEPROM data upload / download

4.2.1 EEPROM data upload / download method

In the case of replacing the Print Board of Controller, copy the old EEPROM content to the new EEPROM of new board and then save the customer setting. To operate this, use Maintenance Utility. About the operating method of Maintenance Utility, refer to Maintenance Utility Operating Specification.

Maintenance Utility is designed for working place engineer use only. It is not released to the end user.

5. Periodic Maintenance

5.1 Periodic Replacement Parts

The following parts should be replaced at a specified cycle.

Name	Conditions	Cleaning	Remarks
• Toner Cartridge	After printing approx. 3,500 pages	• LED head	Consumables
• Image Drum Cartridge	After printing approx. 25,000 pages See 1.4 (15).		Consumables

Note! After using a normal cartridge, the starter toner cartridge (attached at the printer purchase) can not be used. Use the starter toner cartridge first, and then, use the normal toner after [LOW TONER] is displayed.

5.2 Cleaning

Remove toner powder and dust in the printer inner section. Clean the inside of and the periphery of the printer with the cloth as needed. Clean the printer inner section with the handy cleaner (maintenance tool).

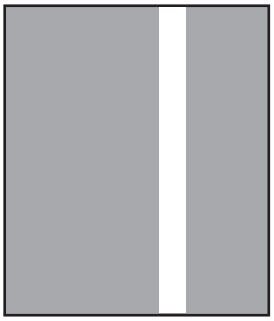
Note! Do not touch the image drum, LED lens array, and LED head terminal.

5.2.1 Cleaning of LED lens array

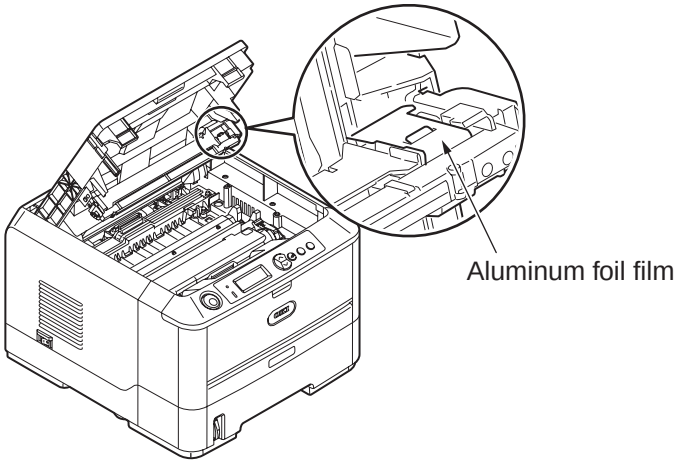
If the vertical white lines, and white belt (white spot, pale printing) occur in printing as shown below, the LED lens array should be cleaned or the toner cartridge should be replaced.

Note! As for the LED lens array, clean it with soft tissues or soft cloth after eliminating static electricity of a maintenance tool.

While lines or White belt
(White spot, pale printing)

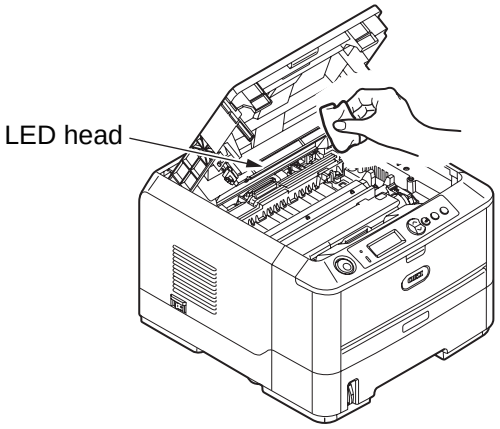


(1) Eliminate static electricity by touching the aluminum foil film section before cleaning the LED head.



Note! Since the printer may be damaged, make sure to clean the LED head after eliminating static electricity.

(2) Wipe the whole LED head softly with the soft tissues or cloth.



Note! Do not use solvents including methyl alcohol, and thinner.

5.2.2 Cleaning Page Function

The printer has the charging roller cleaning function implemented by the user.
The following shows the procedure in the printer operation panel (B420/ B430/ B440 series).
For cleaning printing in B410 series, use "Printer Menu Setup Tool".

(1) To implement the cleaning printing, press the "Menu ▲" or "Menu ▼" key several times, and press the Enter key after the maintenance menu is displayed. Press the "Menu ▲" or "Menu ▼" key to press the Enter key after [Cleaning Printing] is displayed.

(2) For B420, B430 and B440 series, if paper is not loaded in the multi-purpose tray, [Load A4 and press the online switch] is displayed on the upper line of the LCD and [490: MP tray No Paper] is displayed on the lower line. For B410 series, [Manual] is displayed on the upper line of LCD and [A4 Load] is displayed on the lower line. At this time, a string more than 16 digits is scrolled by one-character width from the right to left.

When the above message is displayed on LCD, the printer enters the cleaning mode and the user can check the request for feeding manual-size paper from the printer.

(3) Feed a piece of A4 paper in the multi-purpose tray or the manual feeder slot.

For B420, B439, and B440 series, additionally, press the "Online" key.

(4) The toner attached with the image drum is transferred on the paper fed, and paper is fed under the condition where the remaining toner is printed. While this processing is in progress, LCD shows the [In Cleaning Printing] message is displayed.

(5) The display on LED is returned to [Online].

6. Procedures for Repairing

6.1 Troubleshooting

(1) Check “8. Troubleshooting” of the user’s manual.
(2) Collect the information of the status at the failure as much as possible.
(3) Inspect the device in the status similar to the status at the failure occurrence.

6.2 Points to be checked before modifying printing problems.

(1) Check that the printer is used in appropriate environment conditions.
(2) Check that consumables (image cartridge, image drum cartridge) are proper replaced.
(3) Check that the image drum cartridge is proper set.

6.3 Points to be checked when the printing problems are modified

(1) Make sure not to touch the surface of the image drum or make extraneous materials touched on the surface.
(2) Make sure to avoid direct sunlight.
(3) Make sure not to touch the fuser unit since it is hot during the operation.
(4) Make sure not to exposure the image drum to the light for more than 5 minutes at ambient temperature.

6.4 Preparation for Troubleshooting

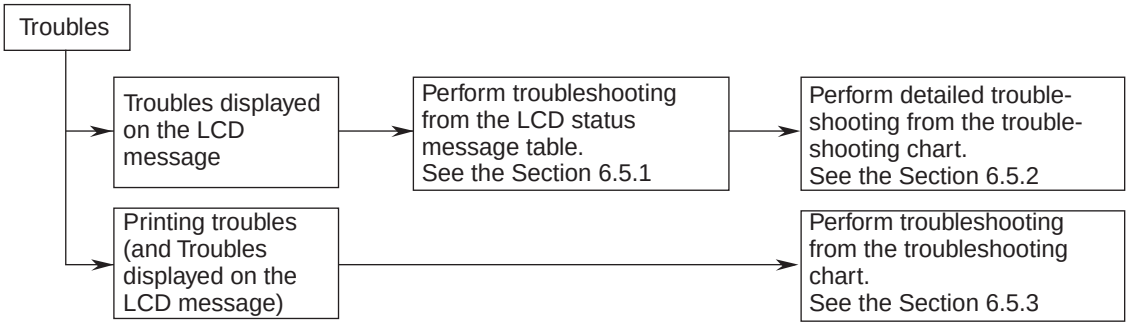
(1) Display of the operator panel

The failure status of the printer is displayed don the LCD of the operator panel. Take an appropriate action as instructed by the messages displayed on LCD.

B430

6.5 Troubleshooting Flow

If there are failures in the printer, troubleshooting is performed according to the following process flow.


Troubles
Troubles displayed on the LCD message
Perform troubleshooting from the LCD status message table.
See the Section 6.5.1
Perform detailed trouble-shooting from the trouble-shooting chart.
See the Section 6.5.2
Printing troubles (and Troubles displayed on the LCD message)
Perform troubleshooting from the troubleshooting chart.
See the Section 6.5.3

6.5.1 LCD Status Message/ Trouble Table

Troubles and statuses possible to be displayed on LCD are outlined in Table 6-1.

Table 6-1 (1/12)

Status level	Error code nnn	LCD (16 digits on the upper level and 16 digits on the lower level) ("□" shows that nothing is displayed on the upper level.)		LED		Contents
		Japanese	English	Ready	Atten	
Normal		INITIALIZING	INITIALIZING	OFF	OFF	In initializing of the printer Since the flash memory may be damaged, the power is not turned off during the display.
Normal		MENU RESETTING	MENU RESETTING	OFF	OFF	In Resetting the menu. Since the flash memory may be damaged, the power is not turned off during the display.
Normal		RAM CHECK **********	RAM CHECK **********	OFF	OFF	In checking RAM Since the flash memory may be damaged, the power is not turned off during the display.
Normal		WAIT A MOMENT NETWORK INITIAL	WAIT A MOMENT NETWORK INITIAL	OFF	OFF	In initializing the network Since the flash memory may be damaged, the power is not turned off during the display.
Normal		FLASH ERASE	FLASH ERASE	OFF	OFF	In erasing the contents of the flash memory
Normal		FLASH CHECK	FLASH CHECK	OFF	OFF	In checking the contents of the flash memory
Normal		FLASH FORMAT	FLASH FORMAT	OFF	OFF	In formatting the flash memory
Normal		PROGRAM UPDATE MODE	PROGRAM UPDATE MODE	OFF	OFF	The special mode where the printer updates the NIC program (control firmware). It is displayed only during the special mode for the maintenance.
Normal		WAIT A MOMENT DATA RECEIVE	WAIT A MOMENT DATA RECEIVE	OFF	Blinking	In receiving the NIC program data to be updated. It is displayed only during the special mode for the maintenance.

Table 6-1 (2/12)

Status level	Error code nnn	LCD (16 digits on the upper level and 16 digits on the lower level) ("□" shows that nothing is displayed on the upper level.)		LED		Contents
		Japanese	English	Ready	Atten	
Normal		WAIT A MOMENT DATA RECEIVE OK	WAIT A MOMENT DATA RECEIVE OK	OFF	OFF	The reception of the NIC program data to be updated is completed. It is displayed only during the special mode for the maintenance.
Normal		CHECK DATA REC DATA ERROR	CHECK DATA REC DATA ERROR	OFF	ON	An error occurs while the reception of the NIC program data to be updated is processing. It is displayed only during the special mode for the maintenance. %DLCODE% 1: Size error 2: Check SUM error 3: Printer model No. error 4: Module I/F version error 5: FAT Version error
Normal		WAIT A MOMENT DATA WRITING	WAIT A MOMENT DATA WRITING	OFF	Blinking	In writing the NIC program data to be updated. It is displayed only during the special mode for the maintenance.
Normal		POWER OFF/ON DATA WRITTEN OK	POWER OFF/ON DATA WRITTEN OK	OFF	OFF	It is completed to write the NIC program data to be updated. It is displayed only during the special mode for the maintenance.
Normal		CHECK DATA DATA WRITE ERROR	CHECK DATA DATA WRITE ERROR	OFF	OFF	An error occurs while the writing of the NIC program data to be updated is processing. It is displayed only during the special mode for the maintenance. %DLCODE% acquisition error 1: Memory alloc Error 2: Download File error 3: Device free space 4: Device insufficient space error 5: File Write error 6: CU-F/W Mismatch error
Normal		STATUS MODE	STATUS MODE	OFF	OFF	It displays that the printer has started in the normal online mode.
Normal		Online	Online	ON	OFF	ONLINE Print data can be received.
Normal		Offline	OFFLINE	OFF	OFF	OFFLINE To print, press the [online] switch to be online.

Table 6-1 (3/12)

Status level	Error code nnn	LCD (16 digits on the upper level and 16 digits on the lower level) ("□" shows that nothing is displayed on the upper level.)		LED		Contents
		Japanese	English	Ready	Atten	
Normal		FILE Accessing	FILE ACCESSING	Not determined	Not determined	It is accessed to the flash memory by print job accounting. Since the flash memory may be damaged, the power is not turned off during the display.
Normal		Receiving	DATA ARRIVE	Not determined	Not determined	In receiving data.
Normal		Processing	PROCESSING	Blinking	Not determined	In receiving data Or Received data is being processed.
Normal		DATA	DATA	Not determined	Not determined	Received data is left. Or the device waits for the data to be sent next.
Normal		Printing	PRINTING	Not determined	Not determined	In printing.
Normal		Print demo page	PRINT DEMO PAGE	Not determined	Not determined	Prints the text page.
Normal		Print font	PRINT FONT	Not determined	Not determined	Prints the font list.
Normal		Print menu map	PRINT MENU MAP	Not determined	Not determined	In printing the menu map.
Normal		Print file list	PRINT FILE LIST	Not determined	Not determined	In printing the file list.
Normal		Print cleaning	PRINT CELANING	Not determined	Not determined	In cleaning printing
Normal		Pint error log	PRINT ERROR LOG	Not determined	Not determined	In error log printing
Normal		Network configuration printing	PRINT NETWORK CONFIG	Not determined	Not determined	In printing the network configuration.
Normal		□ Copy kkk/lll	□ COPY kkk/lll	Not determined	Not determined	When the number of copies are two or more, the number of copies currently printed is displayed. Kkk shows the number of pages currently printed, and "lll" show the total number of printed pages.
Normal		CONTINUOUS PRINT	CONTINUOUS PRINT	Not determined	Not determined	In printing ROLLING ASCII
Normal		CLEAR DATA	CANCELING JOB	Blinking	Not determined	Received data is canceled.
Normal		CLEAR DATA (Jam)	CANCELING JOB (JAM)	Blinking	Not determined	Received data is canceled. (Operation after the recovery of the paper jam)

Table 6-1 (4/12)

Status level	Error code nnn	LCD (16 digits on the upper level and 16 digits on the lower level) ("□" shows that nothing is displayed on the upper level.)		LED		Contents
		Japanese	English	Ready	Atten	
Normal		CLEAR DATA (No print permission)	CANCELING JOB (USER DENIED)	Blinking	Not determined	Jobs are canceled because the jobs are sent from the user not authorized to print by the print job accounting. (1) Jobs from the user not authorized to print in the usage restriction. (2) Jobs from the user not authorized to print in color in the usage restriction. (3) Jobs from the user exceeding the set limit value.
Normal		CLEAR DATA (Buffer full)	CANCELING JOB (BUFFER FULL)	Blinking	Not determined	When the operation of print job accounting at LOG FULL is set to "CANCEL JOBS", there is not enough space to store logs and jobs are canceled.
Normal		□ Fuser temperature adjusting	□ ADJUSTING TEMP	Not determined	Not determined	In the warming-up operation
Normal		□ Power Save	□ POWER SAVE	Not determined	Not determined	In the power saving mode.
Warning		□ Toner low	□ TONER LOW	Not determined	ON (Blinking) (OFF)	The status where the toner is low. Replace the toner cartridge.
Warning		□ NON OEM toner	□ NONOEM TONER DETECTED	Not determined	ON	The appropriate toner cartridge is not installed. It is not an appropriate toner cartridge, but the operation is available.
Warning		□ Toner is not correct	□ TONER REGIONAL MISMATCH	Not determined	ON	The appropriate toner cartridge is not installed. Set the appropriate toner cartridge.
Warning		□ Toner can not be recognized	□ NON GENUINE TONER	Not determined	ON	Indicates the toner cartridge is not for use in the printer. Set the appropriate toner cartridge.
Warning		□ PS3 Emulation error	□ PS3 EMUL ERROR	Blinking	Not determined	The postscript error occurs during the data processing. There are mistakes in the job or the job is too complicated.
Warning		□ PREPARATION FOR DRUM REPLACEMENT	□ ORDER DRUM	Not determined	ON (OFF)	It is almost time to replace the image drum cartridge. Prepare for the replacement of the image drum and toner cartridge, and replace them.
Warning		□ No Toner	□ TONER EMPTY	Not determined	ON	The device runs out of the toner. It is displayed when keeping using the toner after [TONER LOW] is displayed. Replace the toner cartridge. If the toner is used continuously, it may cause the failure of the image drum cartridge.

Table 6-1 (5/12)

Status level	Error code nnn	LCD (16 digits on the upper level and 16 digits on the lower level) ("□" shows that nothing is displayed on the upper level.)		LED		Contents
		Japanese	English	Ready	Atten	
Warning		□ Toner sensor	□ TONER SENSOR	Not determined	ON	the toner sensor is out of order. Turn off and on the power. Replace the image drum cartridge.
Warning		□ No Toner Cartridge	□ TONER NOT INSTALLED	Not determined	ON	The toner cartridge is not installed. Install the toner cartridge.
Warning		□ Drum life	□ DRUM LIFE	Not determined	ON	Time to replace the image drum cartridge. Replace the image drum cartridge and toner cartridge.
Warning		□ tttt No paper	□ tttt EMPTY	Not determined	ON	There is no paper on tttt tray. Load paper in tttt tray.
Warning		□ Tray1 or the duplex print unit is open	□ TRAY1 OR DUPLEX OPEN	Not determined	ON	Tray 1 unit is removed or the duplex unit is not installed.
Warning		□ File system full	□ FILE SYSTEM FULL	Not determined	ON	It is impossible to write in the frashmemory. Obtain a log by the print job accounting.
Warning		□ Forbidden to write in file system	□ FILE IS WRITE PROTECTED	Not determined	ON	It is unwritable on Flash Memory. Try to obtain the log of Print Job Accounting.
Warning		□ JOB LOG. DISK FULL	□ JOB LOG. DISK FULL	Not determined	ON	The free space of the storage device to perform the print statistics function is decreased.
Warning		□ Not authorized ID. JOB is canceled	□ INVALID ID. JOB REJECTED	Not determined	ON	It is displayed after jobs are canceled by "Canceling Jobs (User denied)" in the print job accounting. It remains displayed until the "online" switch is pressed.
Warning		□ Log Buffer full Printing is canceled.	□ LOG BUFFER FULL. JOB REJECTED	Not determined	ON	It is displayed after jobs are canceled by "Cancel Jobs {LOG FULL}" in the print job accounting. It remains displayed until the "online" switch is pressed.

Table 6-1 (6/12)

Status level	Error code nnn	LCD (16 digits on the upper level and 16 digits on the lower level) ("□" shows that nothing is displayed on the upper level.)		LED		Contents
		Japanese	English	Ready	Atten	
Warning		□ File operation error %FS_ERR%	FILE OPERATION FAILED %FS_ERR%	Not determined	ON	There were unauthorized accesses to the flash memory. Obtains the log by the print job accounting. %FS_ERR% 0: GENERAL ERROR 1: VOLUME NOT AVAILABLE 3: FILE NOT FOUND 4: NO FREE FILE DESCRIPTORS 5: INVALID NUMBER OF BYTES 6: FILE ALREADY EXISTS 7: ILLEGAL NAME 8: CANT DEL ROOT 9: NOT FILE 10: NOT DIRECTORY 11: NOT SAME VOLUME 12: READ ONLY 13: ROOT DIR FULL 14: DIR NOT EMPTY 15: BAD DISK 16: NO LABEL 17: INVALID PARAMETER 18: NO CONTIG SPACE 19: CANT CHANGE ROOT 20: FD OBSOLETE 21: DELETED 22: NO BLOCK DEVICE 23: BAD SEEK 24: INTERNAL ERROR 25: WRITE ONLY
Warning		Press the online SW. Invalid Data	PRESS ONLINE SW INVALID DATA	Not determined	Not determined	Invalid data is received. Press the "Online" switch.
Error (Online)		Load mmmm in MP tray and press the online switch.	LOAD mmmm IN MP TRAY AND PRESS ONLINE SWITCH	ON	OFF	There is no paper in MP tray. Load mmmm paper in the MP tray and press the "online" switch. It is displayed only for B430.
Error		Manual Mmmm paper setting	MANUAL Mmmm REQUEST	ON	OFF	There is no paper in the manual tray. Load mmmm paper in the manual tray. It is displayed only for B410dn.
Error (Online)		tttt Load paper in the duplex unit.	tttt DUPLEX REQUEST	Not determined	Blinking	When specifying the duplex printing, load paper in a specified tray to print on the other side of the paper of which printing is completed on one side.

Table 6-1 (7/12)

Status level	Error code nnn	LCD (16 digits on the upper level and 16 digits on the lower level) ("□" shows that nothing is displayed on the upper level.)		LED		Contents
		Japanese	English	Ready	Atten	
Error	460 461 462	Load mmmm/pppp and pres the online switch. nnn:tttt the media type is not matched	LOAD mmmm/pppp AND PRESS ONLINE SWITCH nnn: tttt MEDIA MISMATCH	OFF	Blinking	The media type of paper in the tray is not matched. Load the media type displayed and press the [Online] switch. 460: Multi-purpose tray 461: Tray1 462: Tray2
Error	460 461 462	Load mmmm/pppp and pres the online switch. nnn:tttt the size is not matched	LOAD mmmm/pppp AND PRESS ONLINE SWITCH nnn: tttt SIZE MISMATCH	OFF	Blinking	The paper size in the tray is not matched. Load the paper size displayed and press the [Online] switch. 460: Multi-purpose tray 461: Tray1 462: Tray2
Error (Online)		Download message In processing	DOWNLOAD MESSAGE PROCESSING	Not determined	Not determined	In processing of the message data to be updated
Error (Online)		Download message In writing	DOWNLOAD MESSAGE WRITING	Not determined	Not determined	In writing of the message data to be updated.
Error (Online)		Download message Writing is completed	DOWNLOAD MESSAGE SUCCESS	Not determined	Not determined	Writing of the message data to be updated succeeds.
Error (Online)		Download message Writing Failed	DOWNLOAD MESSAGE FAILED %CODE%	Not determined	Not determined	Writing of the message data to be updated failed. %CODE% 1: FAIL Other error. 2: DATA_ERROR Hash check error at the writing of the data, FLASH Failure. 3: OVER FLOW Download failure because the Flash capacity is full when or while writing the language file. 4: MEMORYFULL Memory ensuring failed. 5: UNSUPPORTED_DATA Downloading of the data not supported by the printer.
Error (Online)		Network configuration In writing	NETWORK CONFIG WRITING	Not determined	Not determined	In storing network board configuration.
Error (Online)		Wait a moment Initializing the network.	WAIT A MOMENT NETWORK INITIAL	Not determined	Not determined	In changing the network configuration.
Error		Load mmmm. nnn: there is no tttt paper.	LOAD mmmm AND PRESS ONLINE SWITCH nnn:MP TRAY EMPTY	OFF	Blinking	In changing the network configuration.
Error	491 492	Load mmmm. There is no nnn:tttt paper.	LOAD mmmm nnn:tttt EMPTY	OFF	Blinking	There is no paper in the tray. Load paper as the size displayed.
Error	490	Load mmmm. And press the online switch nnn: there is no tttt paper in MP tray.	INSTALL PAPER CASSETTE nnn:TRAY1 OPEN	OFF	Blinking	There is no paper in the multi-purpose tray. Load the paper size displayed, and press the online switch.

Table 6-1 (8/12)

Status level	Error code nnn	LCD (16 digits on the upper level and 16 digits on the lower level) ("□" shows that nothing is displayed on the upper level.)		LED		Contents
		Japanese	English	Ready	Atten	
Error	440	Load cassette. nnn: Tray1 is empty.	INSTALL PAPER CASSETTE nnn:TRAY1 OPEN	OFF	Blinking	Cassette is not installed in Tray1. Install the cassette.
Error	430	Load mmmm. nnn: Tray 1 is open.	INSTALL PAPER CASSETTE nnn:tttt MISSING	OFF	Blinking	The cassette of the Tray1 is not installed. Install the cassette.
Error	449	Install the unit. nnn: Tray1 or the duplex unit is open	INSTALL UNIT nnn:TRAY1 OR DUPLEX UNIT OPEN	OFF	Blinking	Paper can not be fed because the cassette of the Tray 1 or the duplex unit is extracted. Install the cassette of the Tray1 and the duplex unit.
Error	420	Add a memory. nnn; Memory overflow	ADD MORE MEMORY nnn:MEMORY OVERFLOW	OFF	Blinking	The device is lacking in the memory. Press the [online] switch. .the memory is added as needed.
Error	413	Replace a toner. nnn: toner is empty.	REPLACE TONER nnn:TONER EMPTY	OFF	Blinking	Toner is empty. It is displayed if the toner is used with [Toner Low] displayed. Replace the toner cartridge. If printing is continued, it causes the failure of the image drum cartridge.
Error	557	Replace a toner nnn: Toner is not matched.	REPLACE TONER nnn:TONER REGIONAL MISMATCH	OFF	Blinking	The toner cartridge is not matched. Set a toner cartridge for this product.
Error	617	Replace a toner nnn: Toner is for other printers.	REPLACE TONER nnn:INCOMPATIBLE TONER	OFF	Blinking	The toner cartridge is not matched. Set a toner cartridge for this product.
Error	623	Replace a toner nnn: Toner is for other printers.	REPLACE TONER nnn:INCOMPATIBLE TONER	OFF	Blinking	The toner cartridge is not matched. Set a toner cartridge for this product.
Error	553	Recommend to use a genuine toner. nnn: Toner is not a genuine toner.	GENUINE TONER IS RECOMMENDED nnn:NON GENUINE TONER	OFF	Blinking	Indicates the toner cartridge is not for use in the printer. Set an appropriate toner cartridge.
Error	613	Set a toner. nnn: Toner is not installed.	INSTALL TONER nnn:TONER MISSING	OFF	Blinking	The toner is not installed. Set the toner cartridge.
Error	543	Check the drum.. nnn: Toner sensor error	CHECK IMAGE DRUM nnn:TONER SENSOR ERROR	OFF	Blinking	Toner sensor error. Extract and insert the image drum cartridge.
Error	400	Open the top cover. nnn: Paper size error	OPEN UPPER COVER nnn:PAPER SIZE ERROR	OFF	Blinking	The paper size is not matched, or multiple pages are fed with overlapped. Open the top cover to remove a jammed sheet, and replace with the correct-size paper.
Error	390	Check MP Tray (B430dn) nnn: Paper jam Check Manual (B410dn) nnn: Paper jam	CHECK MP TRAY(B430dn) nnn:PAPER JAM CHECK MANUAL(B410dn) nnn:PAPER JAM	OFF	Blinking	Paper jams occur while feeding from the MP tray or manual tray. Open the top cover to remove a jammed sheet.
Error	391 392	Open the top cover nnn: paper jam	OPEN UPPER COVER nnn:PAPER JAM	OFF	Blinking	Paper jams occur while feeding from Tray 1 and Tray 2. Open the top cover to remove a jammed sheet.

Table 6-1 (9/12)

Status level	Error code nnn	LCD (16 digits on the upper level and 16 digits on the lower level) ("□" shows that nothing is displayed on the upper level.)		LED		Contents
		Japanese	English	Ready	Atten	
Error	380	Open the top cover nnn: paper jam	OPEN UPPER COVER nnn:PAPER JAM	OFF	Blinking	Paper jams occur while paper is fed in a paper path. Open the top cover to remove a jammed sheet.
Error	381 382 389	Open the top cover nnn: paper jam	OPEN UPPER COVER nnn:PAPER JAM	OFF	Blinking	Paper jams occur while paper is fed in a paper path. Open the top cover to remove a jammed sheet. 381: Under the drum 382: Around the fuser unit 383: Place which can not be identified.
Error	372	Open the rear cover. nnn: Paper jam	OPEN REAR COVER nnn:PAPER JAM	OFF	Blinking	Paper jams occur around the duplex unit. Open the front cover to remove a jammed paper. Paper in the near side.
Error	353	Replace the drum. nnn: Drum Life	REPLACE IMAGE DRUM nnn:DRUM LIFE	OFF	Blinking	The duration of the life of the image drum cartridge. Replace the image drum cartridge.
Error	547	Check toner cartridge nnn: The position of the lock lever is not correct.	CHECK TONER CARTRIDGE nnn:IMPROPER LOCK LEVER POSITION	OFF	Blinking	The toner is not supplied. Check that the knob of the toner cartridge is horizontal. Tap the cartridge.
Error	343	Set the drum again. nnn: Drum error	CHECK IMAGE DRUM nnn:DRUM MISSING	OFF	Blinking	The image drum cartridge is not correctly installed. Reinstall the image drum cartridge.
Error	310 587	Close the cover. nnn: Cover open	CLOSE COVER nnn:COVER OPEN	OFF	Blinking	The top cover or the rear cover is open. Close the cover. 310: Top cover 587: Rear cover
Error		Wait a moment In Receiving data	WAIT A MOMENT DATA RECEIVE	OFF	Blinking	In receiving the NIC program data to be updated.
Error		Wait a moment. In processing of received data	WAIT A MOMENT DATA RECEIVED OK	OFF	OFF	The reception of NIC program data to be updated is completed.
Error		Check the data. Received data error <%DLCODE%>	CHECK DATA REC DATA ERROR <%DLCODE%>	OFF	ON	It shows that an error occurs during the processing of received NIC program data to be updated. 1: Size error 2: Check SUM error 3: Printer model No. error 4: Module I/F version error 5: FAT Version error
Error		Wait a moment. In writing data	WAIT A MOMENT DATA WRITING	OFF	Blinking	In writing the NIC program data to be updated.
Error		Wait a moment. In processing of the data writing	POWER OFF/ON DATA WRITTEN OK	OFF	OFF	It is completed to write the NIC program data to be updated.

Table 6-1 (10/12)

Status level	Error code nnn	LCD (16 digits on the upper level and 16 digits on the lower level) ("□" shows that nothing is displayed on the upper level.)		LED		Contents
		Japanese	English	Ready	Atten	
Error		Check the data. Data write error <%DLCODE%>	CHECK DATA DATA WRITE ERROR <%DLCODE%>	OFF	ON	An error occurs while writing the NIC program data to be updated. 1: Memory Alloc Error 2: Download File Error 3: Device Free Space Acquisition error 4: Device Inefficient Free Space error 5: File Write error 6:CU-F/W Mismatch error
Error	300	Restart the printer. nnn: Network error	POWER OFF/ON nnn:NETWORK ERROR	OFF	Blinking	The network error occurs.
Error		In rebooting %CODE%	REBOOTING %CODE%	OFF	ON	Remove the controller unit. %CODE% 0: Remove due to other than the following causes. 1: Reboot due to the PJL command. 2: Reboot in accordance with the menu change. 3: Reboot due to the quit operator of the PostScript language. 4: Reboot from Network Utility (including Web).
Error		In shutting down	SHUTTING DOWN	OFF	OFF	In shutting down. It is displayed only for B430dn.
Error		SHUTDOWN	SHUTDOWN	OFF	OFF	The shut down is completed. It is displayed only for B430 dn.
Error		PLEASE POW OFF SHUTDOWN COMP	PLEASE POW OFF SHUTDOWN COMP	OFF	OFF	The shutdown is completed. Turn off the power. It is displayed only for B430dn.
Fatal		POWER OFF/ON nnn:FATAL ERROR	POWER OFF/ON nnn:FATAL ERROR	OFF	Blinking	Failures occur in the printer. The following error name is not displayed. 3 digits of the error code are entered in nnn displayed in LCD. * the lower line is only scrolled for the display.
	001					Machine Check Exception
	002					DSI Exception (Data read failure)
	003					ISI Exception (Instruction read failure)
	004					Alignment Exception (Memory access error)
	005					Program Exception (Illegal instruction, trap instruction, privilege violation, and so on)
	006					Floating-point Unavailable Exception

Table 6-1 (11/12)

Status level	Error code nnn	LCD (16 digits on the upper level and 16 digits on the lower level) ("□" shows that nothing is displayed on the upper level.)		LED		Contents
		Japanese	English	Ready	Atten	
	007					Instruction Address Breakpoint Exception (for debugging mode only)
	020					CU ROM Hash Check Error (resident or ROM slot 1)
	023					CU Font ROM Hash Check Error (resident) <Reserved>
	024					CU Font ROM Hash Check Error (ROM slot 1)
	030					CU RAM Check Error (resident)
	031					CU RAM Check Error (option slot) Reinstall the memory. The genuine memory is used as the expansion memory.
	034					RAM Configuration Error
	040					CU EEPROM Error
	041					CU Flash Memory Error
	042					Flash File System Error
	043					Flash File System Version Mismatch
	063					PCI Driver Open error <Reserved>
	070					PostScript Internal Error
	072					Engine Communication Error
	073					H/W Overrun detect
	074					F/W Overrun detect
	075					Video Interface Error
	104					Engine EEPROM Error
	106					Engine Control Error
	120					PU Board Fan Motor Error
	124					Temperature Sensor
	134					Black LED Head Missing
	153					Black Image Drum Fuse Cut Error
	163					Black Toner Sensor Error
	170					Upper Thermistor Circuit Shortened
	171					Upper Thermistor Circuit Opened
	172					Upper Heater High Temperature
	173					Upper Heater Low Temperature Fuser unit humidity error. Turn off the power and wait a moment. And then, turn on the power.
	182					Tray2 Unit I/F Error Reinstall the second tray unit of the options.
	190					System Memory Overflow
	203					EnginePageSequencer IMGACK Error

Table 6-1 (12/12)

Status level	Error code nnn	LCD (16 digits on the upper level and 16 digits on the lower level) ("□" shows that nothing is displayed on the upper level.)		LED		Contents
		Japanese	English	Ready	Atten	
	204					EnginePageSequencer IMGSET Error
	207					EnginePageSequencer illegal Function Call
	208					EnginePageSequencer Parameter Error
	210					EngineControl illegal Page Cargo <Reserved>
	211					EngineControl Page Error <Reserved>
	212					EngineControl Video Queue Error <Reserved>
	213					EngineControl Print Sequence Error <Reserved>
	230					TONER Reader not installed
	231					TONER Reader I/F Error
	0xF0C					System Call Exception
	0xF0D					Trace Exception
	0xFFF					Bus Controller ROM Write Protection

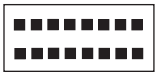
6.5.2 LCD Message Troubleshooting

If you still have trouble even after using the LCD Status Message/ Trouble List, follow the troubleshooting flowchart displayed below to solve the trouble.

No.	Trouble	Flowchart No.
1.	The printer does not work normally after tuning on the power.	①
2.	Jam Alert ├ Paper feed jam ├ Paper path jam └ Paper ejection jam	 ②-1 ②-2 ②-3
3.	Paper size error	③
4.	Fuser unit error	④
5.	SSIO (Synchronized serial input and output) between Printer and Option Tray (Second Tray unit) Error interface time out (No response)	⑤
6.	Fan error	⑥

① The case where the printer does not work normally after tuning on the power

- Turn off the power and then, turn on the power again.



- Are messages in the display of LCD all in black?
  - NO Is the AC cord properly connected?
    - NO Connect the AC cord.
  - Yes Is the cable to connect the main board with the low-voltage power correctly connected?
    - No Connect the cable.
  - Yes Is +5V supplied to the main board?

    (Check with 18 pins and 35 pins of CENT connector)
    - No Do+5V of the main board and GND short out?

      (Check with 18 pins and 35 pins of CENT connector)

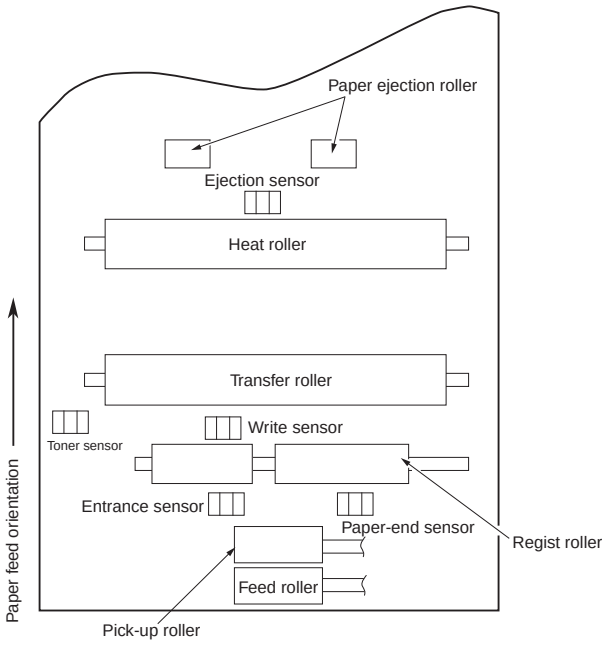
      No Replace the low-voltage power.
    - Yes Replace the main board.
  - Yes The flexible cable of the operator panel Assy is appropriately connected to the LCDPNL connector of the main board and Connector CN1.
    - No Connect the flexible cable appropriately.
  - Yes Replace the operator panel Assy or the flexible cable.
  - Has the problem been solved?
    - No Replace the main board.
  - Yes Completed
- Yes Is the message of "INITIALIZING" displayed on the LCD?
  - No Replace the main board.
- Yes Is the message of "ONLINE" is displayed on the LCD?
  - No Take action according to the LCD status message/ Trouble List. (Refer to the Section 6.5.1 for how to take action.)
- Yes Completed.

[Jam Error]

②-1 Paper feed jam

- Does a jam error occur when turning on the power?
  - Yes — Is there any paper in the entrance sensor?
    - Yes — Remove the paper
    - No — Does the entrance sensor lever work normally? (It moves freely by touching.)
      - No — Replace the entrance sensor lever.
      - Yes — Clean the entrance sensor of the sensor board or high-voltage power, or replace the high-voltage power/ sensor board.
  - No — A jam error occurs after feeding paper.
    - Yes — Is the paper sent to the entrance sensor lever?
      - Yes — Does the entrance sensor lever work normally? (It moves freely by touching.)
        - No — Replace the entrance sensor lever.
        - Yes — Clean the entrance sensor of the sensor board or high-voltage power, or replace the high-voltage power/ sensor board.
    - No — Replace the paper feed roller, pick-up roller or paper cassette.
- No — Does the paper feed roller rotate?
  - Yes — Set the paper cassette appropriately.
- No — Does the paper feed clutch work normally?
  - Yes — Replace the paper feed roller and shaft.
- No — Is HCLT connector of the main board appropriately connected?
  - No — Connect HCLT connector appropriately.
- Yes — Is the coil resistance of the paper feed clutch (Normal resistance: Pin1, Pin2, and approx. 192Ω) normally?
  - No — Replace the paper feed clutch.
- Yes — Replace the main board.

The sensors mounted on High voltage power board are Writing sensor, Entrance sensor, and Toner sensor.



[Jam Error]

②-2 Running jam

- Does a jam error occur when turning on the power?
  - Yes — Is there any paper in the write sensor?
    - • Yes — Remove the paper.
  - No — Does the write sensor lever work normally? (It moves freely by touching.)
    - • No — Replace the paper sensor plate.
  - Yes — Replace the high-voltage power/ sensor board.
- No — Does the paper reach the write sensor lever?
  - • No — Does the paper feed roller rotate?
    - • No — Replace Paper Feed Roller or Paper Feed Clutch.
  - Yes — Is the image drum cartridge appropriately set?
    - • No — Set the image drum cartridge appropriately.
- Yes — Does the paper reach the ejection sensor lever?
  - • Yes — Does the ejection sensor lever work normally? (It moves freely by touching.)
    - • No — Replace the ejection sensor lever.
  - Yes — Clean the ejection sensor or replace the parts.
- No — Does the main drum motor rotate?
  - No — Is the DM connector of the main board connected appropriately?
    - • No — Connect DM connector appropriately.
  - Yes — Replace the main drum motor. Or Replace the main board.
- Yes — Doe the transfer roller rotate?
  - •No — Check the gear. (Transfer roller gear, drum gear at the left of drum cartridge)
- Yes — Is the fuser unit Assy appropriately installed.
  - • No — Install the fuser unit Assy.
- Yes — The image drum cartridge is appropriately set.
  - • No — Set the image drum cartridge appropriately.
- Yes — Clean the high-voltage power/ the write sensor of the sensor board, or replace the high-voltage/ sensor board.

[Jam Error]

②-3 Ejection Jam

- Does an ejection jam error occur when turning on the power?
  - Yes Is there paper in the ejection sensor lever?
    - • Yes Remove the paper.
  - No Does the ejection sensor lever work normally? (It moves freely by touching.)
    - • No Replace the ejection sensor lever.
  - Yes Clean the ejection sensor or replace the parts.
- Yes Is the paper ejection roller appropriately installed?
  - • No Install the paper ejection roller appropriately.
- Yes Is the paper ejection sprint appropriately installed?
  - • No Install the paper ejection sprint appropriately.
- Yes Replace Cover-Assy Rear or fuser unit Assy.

③ Paper Size Error

- Is the paper which is specified size used?
  - No Use a specified-size paper.

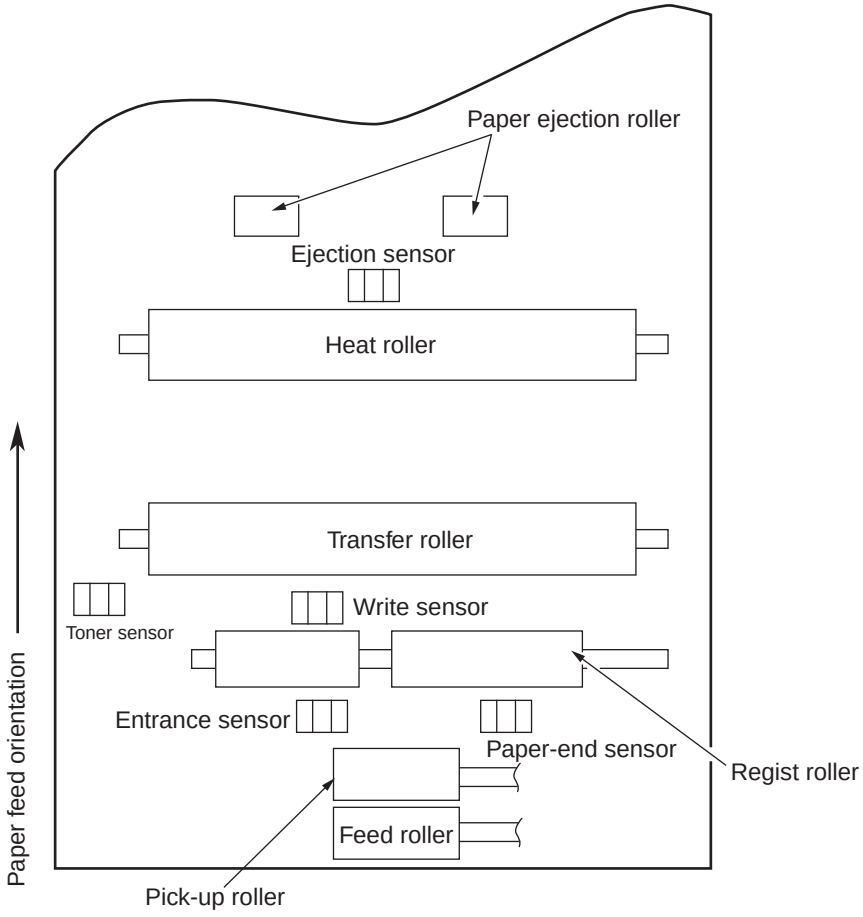
Yes Does the entrance sensor lever work normally? (It moves freely by touching.)

- No Replace the entrance sensor lever, or clean the high-voltage power/ the entrance sensor of the sensor board.

Yes Does the write sensor lever work appropriately? (It moves freely by touching.)

- No Replace the write sensor lever, or clean the high-voltage power/ the entrance sensor of the sensor board.

Yes Replace the high-voltage power/ the entrance sensor of the sensor board.



The sensors mounted on High voltage power board are Writing sensor, Entrance sensor, and Toner sensor.

④ Fuser unit Assy (Error 170) (Error 171) (Error 172) (Error 173)

- Is the thermistor connector normally inserted in the CN2 connector of the high-voltage power/ sensor board?
  - No Insert the Thermistor connector correctly.
- Yes Is the heater connector normally inserted in the CN1 connector of the low-voltage power.
  - No Insert the heater connector appropriately.
- Yes Is the heater ON when turning on the power?
  - No Replace the fuser unit Assy, low-voltage power or main board.
- Yes Replace the fuser unti Assy or the main board.

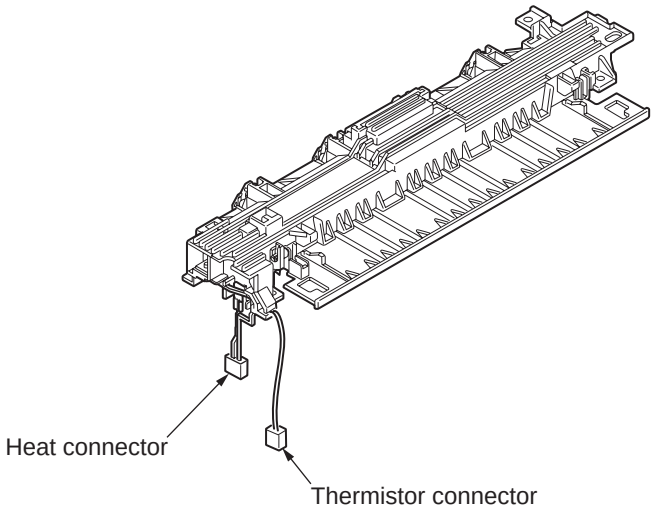


Figure 6-1

⑤ Interface Error (Error 182)

- Is the Second Tray unit used?
  - Yes Is the printer main body appropriately set on the Second Tray unit?
    - No Set the printer main body appropriately.
  - Yes Replace the main board.
  - Has the trouble been solved?
    - No Check the trouble according to the maintenance manual of the Second Tray unit of the appendix C.
  - Yes Completed.
- No Replace the main board.

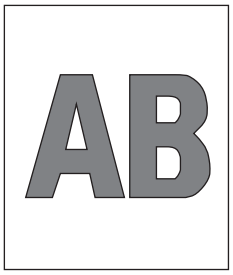
⑥ Fan Error (Error 120)

- Does the fan rotate?
  - Yes Replace the main board.
- No Is the fan connector of the high-voltage power/ sensor board connected?
  - •No Connect the fan connector appropriately.
- Yes Replace the fan or main board.

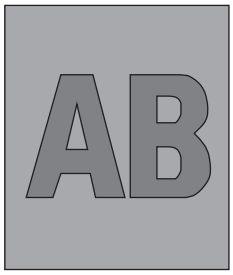
6.5.3 Print Troubleshooting

The troubleshooting procedure of abnormal printing is described as follows. The typical abnormal printing is shown in the following Figure 6-2.

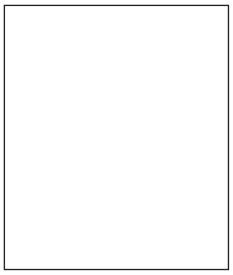
Trouble	Flowchart number
Pale printing or the whole printing is faded. (Fig.6-2 Ⓐ)	①
The white section is dirty. (Fig.6-2 Ⓑ)	②
White paper is outputted (Fig. 6-2 Ⓒ)	③
Vertical black belt/ Black line (Fig. 6-2 Ⓓ)	④
Periodic failure (Fig. 6-2 Ⓔ)	⑤
A part of printing is extracted	⑥
Inefficient fusing (when touching the printed sheet, printed characters or image is faded or come off.)	⑦
Vertical white belt/ White line (Fig. 6-2 Ⓕ)	⑧



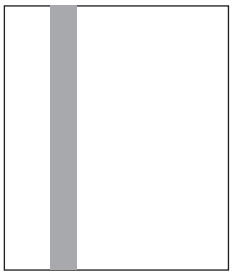
Ⓐ Pale printing or the whole printing is faded



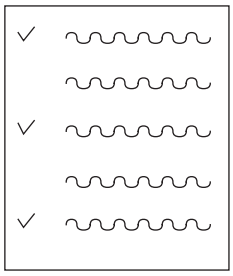
Ⓑ The white section is dirty



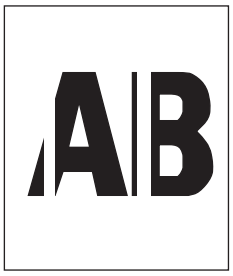
Ⓒ White paper



Ⓓ Vertical black belt/ Black line



Ⓔ Periodic failure

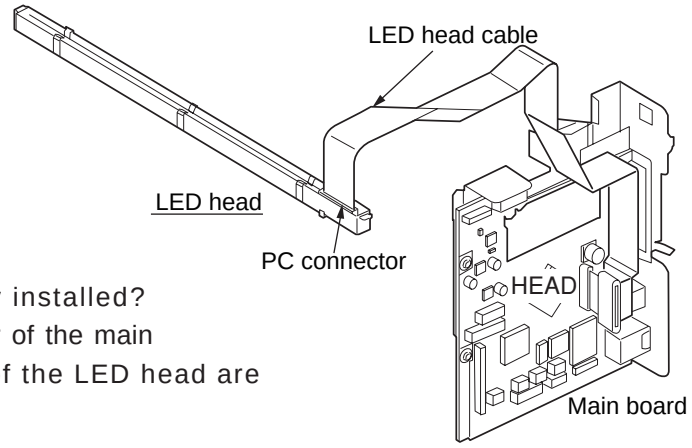


Ⓕ Vertical white belt/ White line

Figure 6-2

① Pale printing or the whole printing is faded.

- Does the printer lack toner? (Is the message of Toner Low displayed?)
  - • Yes Supply the toner.
- No Is specified paper used.
  - • No Use specified paper.
- Yes Is the lens of the LED head dirty?
  - • Yes Clean the lens.
- No Is the LED head appropriately installed? (Check that the HEAD connector of the main board and the PC connector of the LED head are appropriately connected.)



  - • No Install the LED head appropriately.
- Yes Is the contact plate of the transfer roller appropriately connected to the high-voltage power/ te contact assembly of the sensor board. (See Figure 6-5.)
  - • No Adjust the contact plate of the transfer roller so that it can be connected to the transfer roller shaft.
- Yes Are the contact of the developing roller and toner supply roller of the image drum cartridge appropriately connected to the contact assembly? (See Figure 6-3 Ⓐ and Ⓑ)
  - • No Adjust so that the contacts of the developing roller and toner supply roller are connected to the contact assembly.
- Yes Replace the transfer roller.
- Has the trouble been solved?
  - • Yes Completed
- No Replace the image drum cartridge.
- Has the trouble been solved?
  - • Yes Completed
- No Are the surface status of the back up roller and the installation of the bias spring of the back-up roller appropriate?
  - • No Replace the back-up roller or bias spring.
- Yes Replace the main board, high-voltage power/ sensor board.

② The white section is dirty

- Is the image drum exposed by the external light?
  - Yes Install the image drum in the printer and wait 30 minutes.

No Perform the cleaning page function. (See the section 5.2.2.)

Has the trouble been solved?

- Yes Completed.

No Is the heat roller of the fuser unit assy dirty?

- Yes Clean the heat roller.

No Is the cleaning roller contact of the image drum cartridge appropriately connected to the contact assembly? (See Figure 6-3 Ⓒ)

- No Adjust so that the cleaning roller contact can be properly connected to the contact assembly.

Yes Replace the image drum cartridge.

Has the trouble been solved?

- Yes Completed.

No Replace the main board, high-voltage power/ sensor board.

③ White paper is outputted

- Is the LED head appropriately connected? (Check the HEAD connector of the main board and the PC connector of the LED head.)
  - No Connect the LED head appropriately or replace the head cable.

Yes Is the image drum cartridge appropriately connected to the earth contact? (See Figure 6-3 Ⓒ)

- No Adjust the earth contact (drum) of the contact assembly.

Yes Replace the LED head.

Has the trouble been solved?

- Yes Completed.

No Replace the main board, high-voltage power/ sensor board.

④ Vertical black belt/ Black line

- Perform the Cleaning page function. (See the section 6.2.2.)
- Has the trouble been solved?
  - Yes Completed.
- No Replace the image drum cartridge.
- Has the trouble been solved?
  - Yes Completed.
- Clean the LED lens array of the LED head.
- Has the trouble been solved?
  - Yes Completed.
- No Replace the LED head.
- Has the trouble been solved?
  - Yes Completed.
- No Replace the main board, high-voltage power/ sensor board.

⑤ Periodic failure

	Cycle	Handling
Image Drum	94.37mm	Replace or clean the image drum cartridge.
Developing roller	44.70mm	Replace the image drum cartridge.
Toner supply roller	70.30mm	Replace the image drum cartridge.
Charging roller	29.84mm	Replace the image drum cartridge.
Cleaning roller	24.84mm	Replace the image drum cartridge.
Transfer roller	51.68mm	Replace the transfer roller.
Heat roller	63.15mm	Replace the fuser unit Assy.
Back-up roller	69.40mm	Replace the back-up roller.

⑥ In case of error printing

- Does the contact plate of transfer roller contact power/sensor board properly. (Refer to Diagram6-5)
  - No — Adjust the contact plate to contact power/sensor board and transfer roller shaft properly.
- Yes — Replace transfer roller.
- Has the problem been solved?
  - Yes — Completed
- No — Is LED Head installed properly? (Check the HEAD connector of main board and PC connector of LED Head.)
  - No — Install LED Head properly.
- Yes — Replace LED Head or Head cable.
- Has the problem been solved?
  - Yes — Completed
- No — Replace the Main board or High voltage power/sensor board.

⑦ In case of inefficient fusing (If touch by hand the character or image that are printed on paper will be faded or unstuck.)

- Is the specified paper used?
  - No — Use the specified paper.
- Yes — Is the tension of Back up roller (7.52kg) and the surface of Back up roller normal?
  - No — Replace Back up roller or bias spring.
- Yes — Dose the contact point of Fuser Assy contact the contact assembly properly. (Refer to Diagram 6-3Ⓖ)
  - No — Adjust the contact point of Fuser Assy to contact the contact assembly properly.
- Yes — Replace Fuser Assy.
- Has the problem been solved?
  - Yes — Completed
- No — Replace Main board or High voltage power/sensor board.

⑧ Vertical white belt/ White line

- Is the LED lens dirty?
  - • Yes Clean the LED lens.
- No Is the contact plate of the transfer roller appropriately connected to the high-voltage power / sensor board? (See Fig. 6-5.)
  - •No Adjust so that the contact plate can be appropriately connected to the high-voltage power / sensor board.
- Yes Replace the transfer roller.
- Has the trouble been solved?
  - • Yes Completed.
- No Are the surface status of the back-up roller and the installation of the bias sprint of the back-up roller appropriate?
  - • No Replace the back-up roller or the bias spring.
- Yes Is the LED head appropriately installed? (Check the HEAD connector of the main board and the PC connector of the LED head.)
  - • No Install the LED head appropriately.
- Yes Replace the LED head.
- Has the trouble been solved?
  - • Yes Completed.
- Yes Replace the image drum cartridge.
- Has the trouble been solved?
- No Replace the main board, high-voltage power/ sensor board.

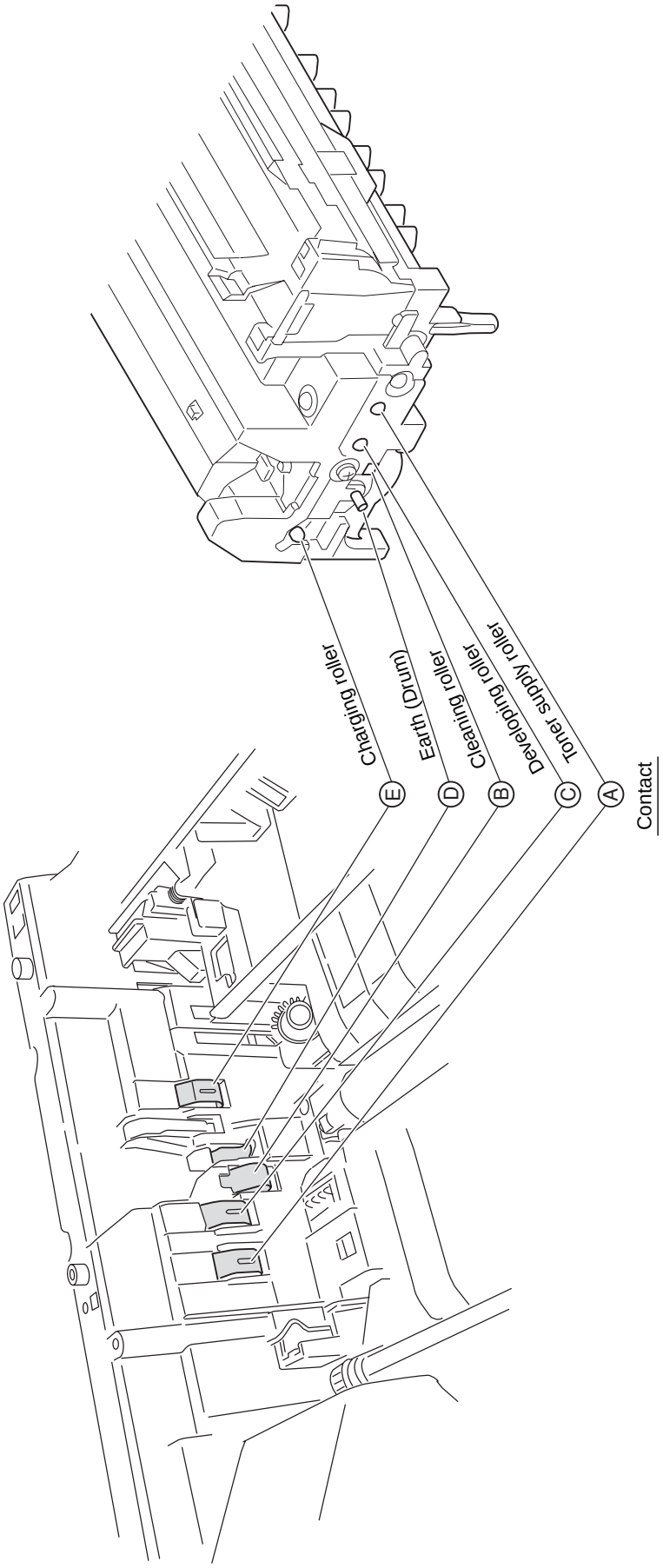

Charging roller
Earth (Drum)
Clearing roller
Developing roller
Toner supply roller
E
D
B
C
A
Contact

Figure 6-3

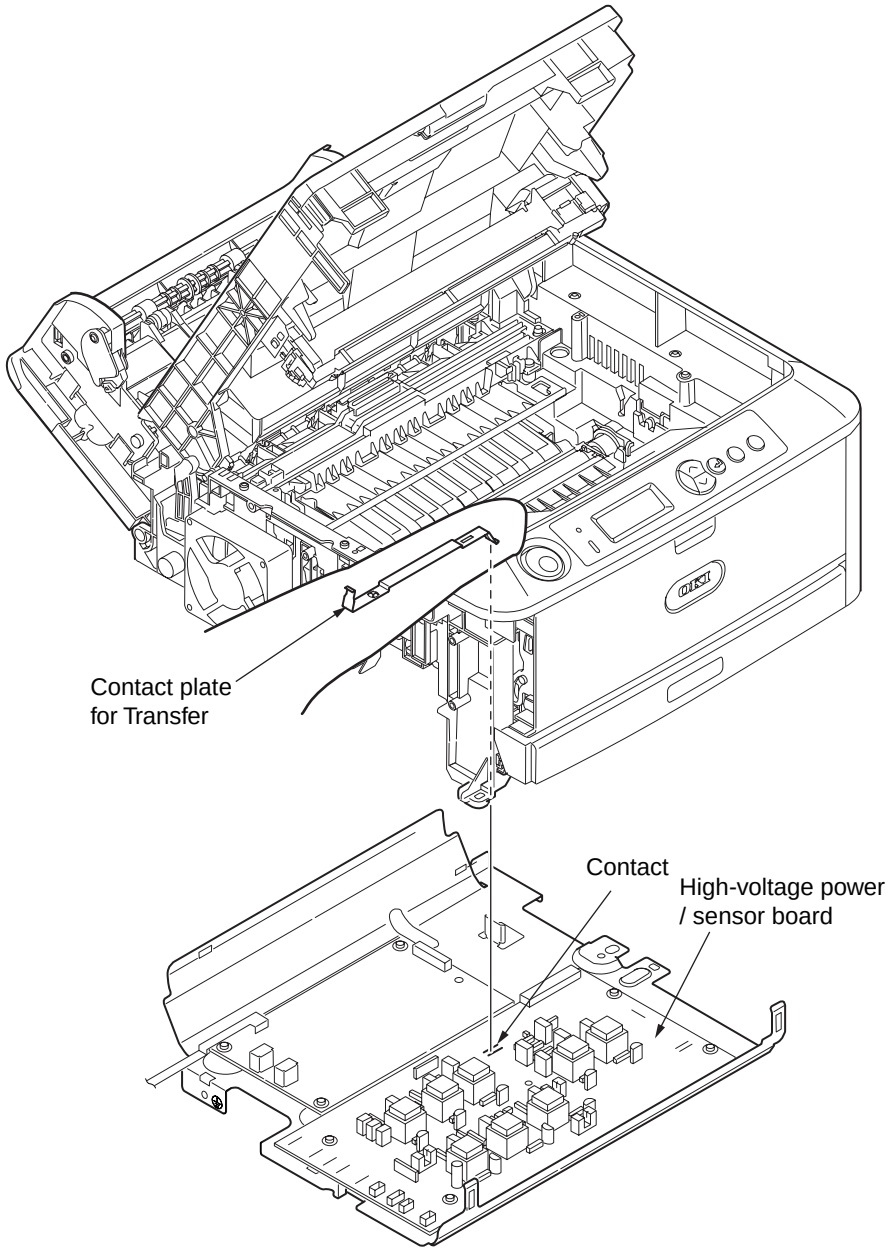
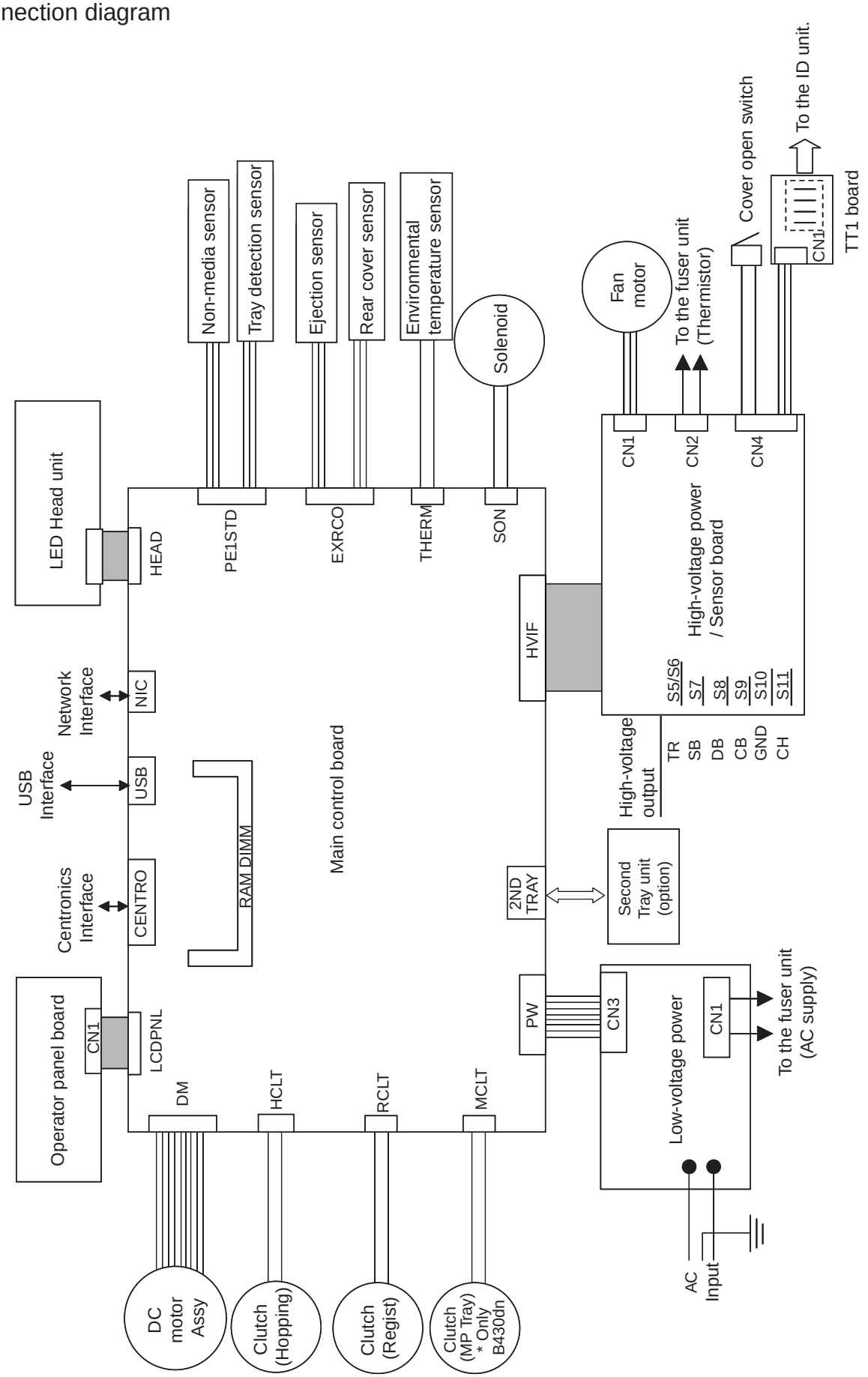

Contact plate
for Transfer
Contact
High-voltage power
/ sensor board

Figure 6-4

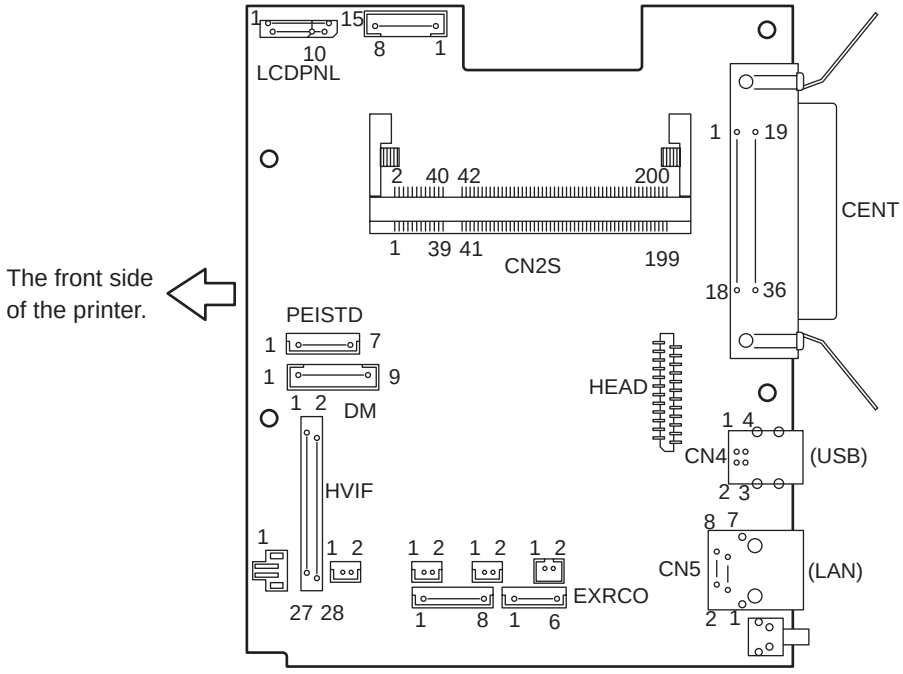
7. Connection Diagram

7.1 Connection diagram



7.2 Board Layout

(1) Main control board



• CN4 Connector Pin Allocation
(Connection to USB I/F)

Pin No.	I/O	Signal	Function
1	I	vbus	Power
2	I/O	D-	Serial Data
3	I/O	D+	Serial Data
4	C	GND	Logic Ground

• CN5 Connector Pin Allocation
(Connection to LAN I/F)

Pin No.	I/O	Signal	Function
1	O	TXD+	Transmission signal +
2	O	TXD-	Transmission signal -
3	I	RXD+	Reception signal+
4	-	NC	Not used
5	-	NC	Not used
6	I	RXD-	Reception signal -
7	-	NC	Not used
8	-	NC	Not used

• PW Connector Pin Allocation
(Connection to the low-voltage power)

1
2
3
4
5
6
7
8

Pin No.	I/O	Signal	Function
1	O	HEATON-N	Heater ON
2	I	+5V	Logic Circuit Power Supply
3	I	+5V	Logic Circuit Power Supply
4	C	GND	Logic Ground
5	C	GND	Logic Ground
6	I	ZCROSS	AC zero cross signal
7	C	0VP	Analog Ground
8	I	+24V	Motor/ Fan/ Clutch Drive Power

• HEAD Connector Pin Allocation
(Connection the LED head)

1		2
3		4
5		6
7		8
9		10
11		12
13		14
15		16
17		18
19		20
21		22
23		24

Pin No.	I/O	Signal	Function
1	O	VDD	LED Drive Power
2	C	GND	LED Ground
3	O	VDD	LED Drive Power
4	C	GND	LED Ground
5	O	VDD	LED Drive Power
6	C	GND	LED Ground
7	O	VDD	LED Drive Power
8	C	GND	LED Ground
9	O	VDD	LED Drive Power
10	C	GND	LED Ground
11	O	+3.3V	Logic Power
12	I	SO	Serial Data
13	O	SCK	Serial Clock
14	O	STBN/SI	Strobe
15	O	D0	Data 0
16	O	D1	Data 1
17	O	D2	Data 2
18	O	D3	Data 3
19	O	HSYNCN	Synchronizing signal
20	O	LOAD	Load
21	C	VSS	Logic Ground
22	O	CLKN	Clock
23	O	CLKP	Clock
24	C	VSS	Logic Ground

• HCLT Connector Pin Allocation
(Connection to Hopping clutch)

1
2

Pin No.	I/O	Signal	Function
1	O	HCLTON-P	Clutch Drive power
2	C	HCLTGND	Analog Ground

• RCLT Connector Pin Allocation
(Connection to the Regist Clutch)

1
2

Pin No.	I/O	Signal	Function
1	O	RCLTON-P	Clutch Drive Power
2	C	RCLTGND	Analog Ground

• MCLT Connector Pin Allocation
(Connection to the Multi-feeder Clutch)

1
2

Pin No.	I/O	Signal	Function
1	O	MCLTON-P	Clutch Drive Power
2	C	MCLTGND	Analog Ground

• SON Connector Pin Allocation
(Connection to the Solenoid)

1
2

Pin No.	I/O	Signal	Function
1	O	SON-P	Solenoid Drive Power
2	C	SGND	Analog Ground

• PE1STD Connector Pin Allocation
(Connection to the front sensor)

1
2
3
4
5
6
7

Pin No.	I/O	Signal	Function
1	O	5V	Logic Circuit Power Supply
2	C	PAPER-N	Detection of the media presence in a tray
3	O	GND	Logic Ground
4	C	5V	Logic Circuit Power Supply
5	O	1ST_DUP-N	1st Tray/ Detection of the Duplex unit
6	C	GND	Logic Ground
7	NC	NC	Not connected

• EXRCO Connector Pin Allocation
(Connection to the Rear Sensor)

1
2
3
4
5
6

Pin No.	I/O	Signal	Function
1	O	5V	Logic Circuit Power Supply
2	C	EXIT-N	Detection of the media output
3	O	GND	Logic Ground
4	C	5V	Logic Circuit Power Supply
5	O	RCOPN-N	Detection whether to open or close the rear cover
6	C	GND	Logic Ground

• LCDPNL Connector Pin Allocation
(Connection to the Operator Panel)

For B410dn only use Pin No. 1~10, yet for B430dn use all of No. 1~15.

1	
	2
3	
	4
5	
	6
7	
	8
9	
	10
11	
	12
13	
	14
15	

Pin No.	I/O	Signal	Function
1	C	GNDLCD	Logic Ground
2	O	LCD_RS	Register Selection
3	O	LED1	LED ON
4	O	5VLCD	Logic Circuit Power Supply
5	O	LED2	LED ON
6	O	LCD_CSB	Register Clear
7	I	SW6	Switch 6
8	O	LCD_CLK	Serial Clock
9	O	LCD_D0	Serial Data
10	O	LCD_RST	LCD Reset
11	I	SW1	Switch 1
12	I	SW4	Switch 4
13	I	SW2	Switch 2
14	I	SW5	Switch 5
15	I	SW3	Switch 3

• HVIF Connector Pin Allocation
(Connection to High-Voltage power or Sensor Board I/F)

1	
	2
3	
	4
5	
	6
7	
	8
9	
	10
11	
	12
13	
	14
15	
	16
17	
	18
19	
	20
21	
	22
23	
	24
25	
	26
27	
	28

Pin No.	I/O	Signal	Function
1	O	CB2PWM	CB2 Output
2	O	CB1PWM	CB1 Output
3	O	CHPWM	CH Output
4	I	WRSNS	Paper Detection
5	C	GND	Logic Ground
6	O	TR2PWM	TR2 Output
7	O	TR1PWM	TR1 Output
8	I	VSEN	TR1 Power Voltage Detection
9	I	ISEN	TR1 Electric Current Detection
10	I	DB_I	DB2 Electric Current Detection
11	I	DB2_V_FB	DB2 Power Voltage Detection
12	I	SB_V_FB	SB2 Power Voltage Detection
13		CH_I	Not used
14	I	CH_V_FB	CH Power Voltage Detection
15	I	PSIN1	Paper Detection
16	O	DB1PWM	DB1 Output
17	O	DB2PWM	DB2 Output
18	O	SBPWN	SB2 Output
19	O	+5V	+5V Power
20	I	TONER	Toner Amount Detection
21	C	GND	Logic Ground
22	O	FANPOW	FAN Drive Power
23	I	FANALM	FAN Alarm Detection
24	I	THERM	Fusing Temperature Detection
25	I	CVOPN-N	Cover-open Detection
26	I/O	TONER	EEPROM 1-wire signal
27	C	GND	Logic Ground
28	O	FUSECUT	Fuse-cut signal

• THERM Connector Pin Allocation
(Connection to the environmental sensor)

1
2

Pin No.	I/O	Signal	Function
1	O	THERM1	Sensor Power
2	I	THERM2	Environmental Temperature Detection

• 2NDTRAY Connector Pin Allocation
(Connection to the Option tray I/F)

1
2
3
4
5
6
7
8

Pin No.	I/O	Signal	Function
1	O	SCLK-N	Clock
2	I/O	DATA-N	Data
3	I	SDP-N	OPT Transmission Mode
4	O	OPCNT-N	Control Signal
5	C	0V	Logic Ground
6	O	+5V	Logic Circuit Power Supply
7	C	0VP	Analog Ground
8	O	+24V	Motor/ Clutch Drive Power

• DM Connector Pin Allocation
(Connection to the main motor)

1
2
3
4
5
6
7
8
9

Pin No.	I/O	Signal	Function
1	C	GND	Logic Ground
2	O	+5V	Logic Circuit Power Supply
3	O	+24V	Motor Drive Power
4	C	0VP	Analog Ground
5	O	DMON-N	Motor-ON signal
6	I	DMLOCK-P	Motor Lock detection
7	O	CW_CCW	Signal of Motor rotation Direction
8	O	DMCLK	Motor Clock
9	O	GAIN	Motor Gain Chang

• CENT Connector Pin Allocation
(Connection to the Centronics I/F)

1	19
2	20
3	21
4	22
5	23
6	24
7	25
8	26
9	27
10	28
11	29
12	30
13	31
14	32
15	33
16	34
17	35
18	36

Pin No.	I/O	Signal	Function
1	I	STB-N	Strobe
2	C	DATA0-P	Data bit 0
3	C	DATA1-P	Data bit 1
4	C	DATA2-P	Data bit 2
5	C	DATA3-P	Data bit 3
6	C	DATA4-P	Data bit 4
7	C	DATA5-P	Data bit 5
8	C	DATA6-P	Data bit 6
9	C	DATA7-P	Data bit 7
10	O	ACK-N	Acknowledge
11	O	BUSY-P	Busy
12	O	PE-P	Paper End
13	O	SEL-P	Select
14	I	AUTOFEED-N	Auto Feed
15	-	NC	Not connected
16	C	SG	Logic Ground
17	C	FG	Chassis Ground
18	O	HILEVEL	High Level
19	C	SG	Logic Ground
20	C	SG	Logic Ground
21	C	SG	Logic Ground
22	C	SG	Logic Ground
23	C	SG	Logic Ground
24	C	SG	Logic Ground
25	C	SG	Logic Ground
26	C	SG	Logic Ground
27	C	SG	Logic Ground
28	C	SG	Logic Ground
29	C	SG	Logic Ground
30	C	SG	Logic Ground
31	I	IPRIM-N	I Prime
32	O	FAULT-N	Fault
33	C	SG	Logic Ground
34		NC	Not connected
35	O	HILEVEL	High level
36	I	SELIN-N	Select-IN

• CN2S Connector Pin Allocation
(Connection to RAM-DIMM)

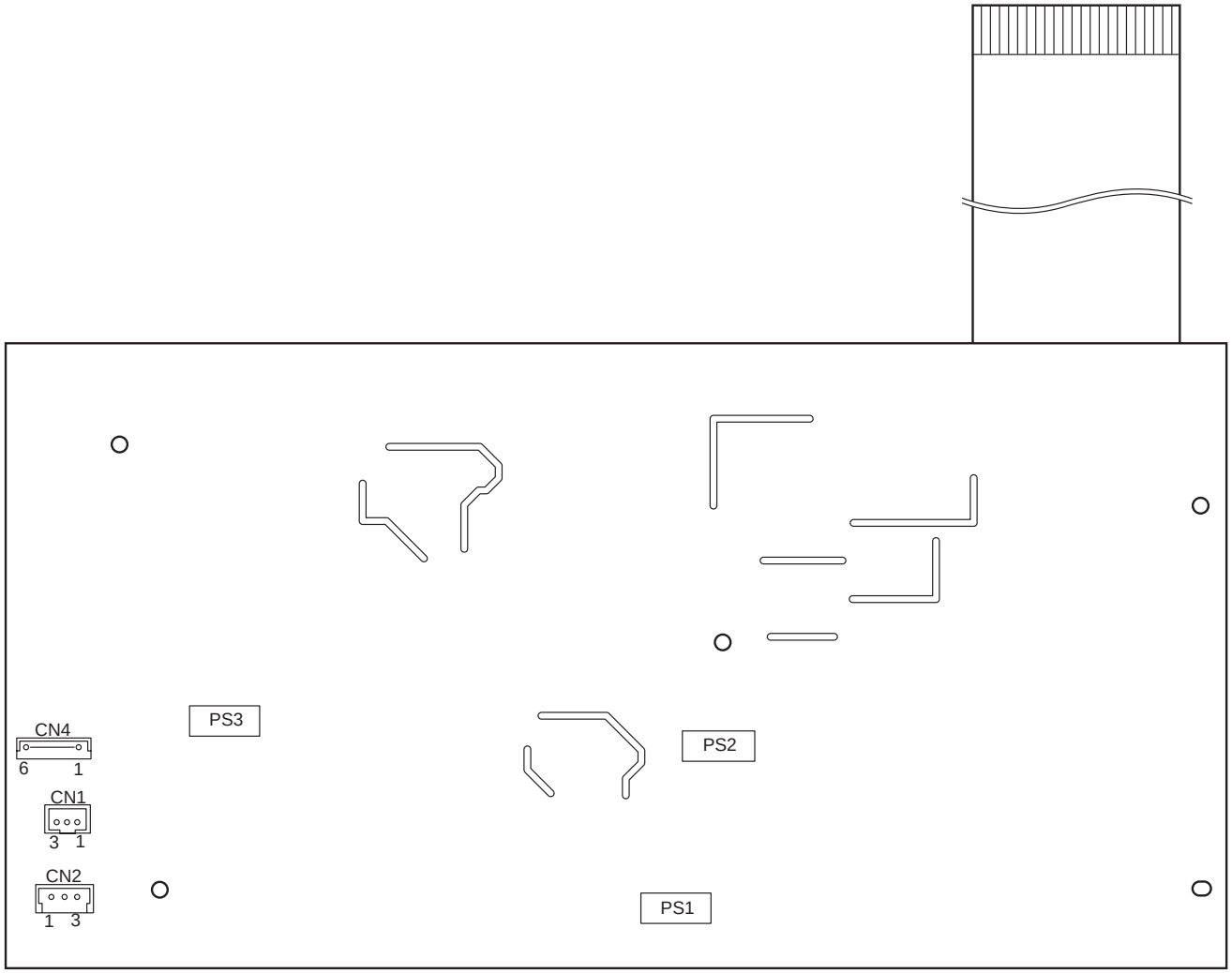
		Pin No.	I/O	Signal	Function
1		1	I	VREF	Reference Power Voltage
	2	2	I	VREF	Reference Power Voltage
3		3	C	VSS	Logic Ground
	4	4	C	VSS	Logic Ground
5		5	O	DQ0	Data Bus 0
	6	6	O	DQ4	Data Bus 4
7		7	O	DQ1	Data Bus 1
	8	8	O	DQ5	Data Bus 5
9		9	O	VDD	Logic Power
	10	10	O	VDD	Logic Power
11		11	O	DQS0	Data Strobe 0
	12	12	O	DM0	Data Mask 0
13		13	O	DQ2	Data Bus 2
	14	14	O	DQ6	Data Bus 6
15		15	C	VSS	Logic Ground
	16	16	C	VSS	Logic Ground
17		17	O	DQ3	Data Bus 3
	18	18	O	DQ7	Data Bus 7
19		19	O	DQ8	Data Bus 8
	20	20	O	DQ12	Data Bus 12
21		21	O	VDD	Logic Power
	22	22	O	VDD	Logic Power
23		23	O	DQ9	Data Bus 9
	24	24	O	DQ13	Data Bus 13
25		25	O	DQS1	Data Strobe 1
	26	26	O	DM1	Data mask 1
27		27	C	VSS	Logic Ground
	28	28	C	VSS	Logic Ground
29		29	O	DQ10	Data Bus 10
	30	30	O	DQ14	Data Bus 14
31		31	O	DQ11	Data Bus 11
	32	32	O	DQ15	Data Bus 15
33		33	O	VDD	Logic Power
	34	34	O	VDD	Logic Power
35		35	O	CK0	Clock 0
	36	36	O	VDD	Logic Power
37		37	O	CK0N	Clock 0
	38	38	C	VSS	Logic Ground
39		39	C	VSS	Logic Ground
	40	40	C	VSS	Logic Ground
41		41	-	NC	Not Connected
	42	42	-	NC	Not Connected
43		43	-	NC	Not Connected
	44	44	-	NC	Not Connected
45		45	O	VDD	Logic Power
	46	46	O	VDD	Logic Power
47		47	-	NC	Not Connected
	48	48	-	NC	Not Connected
49		49	-	NC	Not Connected
	50	50	-	NC	Not Connected
51		51	C	VSS	Logic Ground
	52	52	C	VSS	Logic Ground
53		53	-	NC	Not Connected
	54	54	-	NC	Not Connected
55		55	-	NC	Not Connected
	56	56	-	NC	Not Connected

		Pin No.	I/O	Signal	Function
57		57	O	VDD	Logic Power
	58	58	O	VDD	Logic Power
59		59	-	NC	Not Connected
	60	60	-	NC	Not Connected
61		61	-	NC	Not Connected
	62	62	-	NC	Not Connected
63		63	C	VSS	Logic Ground
	64	64	C	VSS	Logic Ground
65		65	-	NC	Not Connected
	66	66	-	NC	Not Connected
67		67	-	NC	Not Connected
	68	68	-	NC	Not Connected
69		69	O	VDD	Logic Power
	70	70	O	VDD	Logic Power
71		71	-	NC	Not Connected
	72	72	-	NC	Not Connected
73		73	-	NC	Not Connected
	74	74	-	NC	Not Connected
75		75	C	VSS	Logic Ground
	76	76	C	VSS	Logic Ground
77		77	-	NC	Not Connected
	78	78	-	NC	Not Connected
79		79	-	NC	Not Connected
	80	80	-	NC	Not Connected
81		81	O	VDD	Logic Power
	82	82	O	VDD	Logic Power
83		83	-	NC	Not Connected
	84	84	-	NC	Not Connected
85		85	-	NC	Not Connected
	86	86	-	NC	Not Connected
87		87	C	VSS	Logic Ground
	88	88	C	VSS	Logic Ground
89		89	-	NC	Not Connected
	90	90	C	VSS	Logic Ground
91		91	-	NC	Not Connected
	92	92	O	VDD	Logic Power
93		93	O	VDD	Logic Power
	94	94	O	VDD	Logic Power
95		95	O	CKE1	Clock Enable 1
	96	96	O	CKE0	Clock Enable 0
97		97	-	NC	Not Connected
	98	98	-	NC	Not Connected
99		99	O	A12	Address Bus 12
	100	100	O	A11	Address Bus 11
101		101	O	A9	Address Bus 9
	102	102	O	A8	Address Bus 8
103		103	C	VSS	Logic Ground
	104	104	C	VSS	Logic Ground
105		105	O	A7	Address Bus 7
	106	106	O	A6	Address Bus 6
107		107	O	A5	Address Bus 5
	108	108	O	A4	Address Bus 4
109		109	O	A3	Address Bus 3
	110	110	O	A2	Address Bus 2
111		111	O	A1	Address Bus 1
	112	112	O	A0	Address Bus 0
113		113	O	VDD	Logic Power
	114	114	O	VDD	Logic Power
115		115	O	A10	Address Bus 10
	116	116	O	BA1	Bank Select 1

		Pin No.	I/O	Signal	Function
117		117	O	BA0	Bank Select 0
	118	118	O	RAS	Low Address Strobe
119		119	O	WE	Write Enable
	120	120	O	CAS	Column-Address Strobe
121		121	O	CS0N	Chip Select 0
	122	122	O	CS1N	Chip Select 1
123		123	O	A13	Address Bus 13
	124	124	-	NC	Not Connected
125		125	C	VSS	Logic Ground
	126	126	C	VSS	Logic Ground
127		127	-	NC	Not Connected
	128	128	-	NC	Not Connected
129		129	-	NC	Not Connected
	130	130	-	NC	Not Connected
131		131	O	VDD	Logic Power
	132	132	O	VDD	Logic Power
133		133	-	NC	Not Connected
	134	134	-	NC	Not Connected
135		135	-	NC	Not Connected
	136	136	-	NC	Not Connected
137		137	C	VSS	Logic Ground
	138	138	C	VSS	Logic Ground
139		139	-	NC	Not Connected
	140	140	-	NC	Not Connected
141		141	-	NC	Not Connected
	142	142	-	NC	Not Connected
143		143	O	VDD	Logic Power
	144	144	O	VDD	Logic Power
145		145	-	NC	Not Connected
	146	146	-	NC	Not Connected
147		147	-	NC	Not Connected
	148	148	-	NC	Not Connected
149		149	C	VSS	Logic Ground
	150	150	C	VSS	Logic Ground
151		151	-	NC	Not Connected
	152	152	-	NC	Not Connected
153		153	-	NC	Not Connected
	154	154	-	NC	Not Connected
155		155	O	VDD	Logic Power
	156	156	O	VDD	Logic Power
157		157	O	VDD	Logic Power
	158	158	O	CK1N	Clock 1
159		159	C	VSS	Logic Ground
	160	160	O	CK1	Clock 1
161		161	C	VSS	Logic Ground
	162	162	C	VSS	Logic Ground
163		163	-	NC	Not Connected
	164	164	-	NC	Not Connected
165		165	-	NC	Not Connected
	166	166	-	NC	Not Connected
167		167	O	VDD	Logic Power
	168	168	O	VDD	Logic Power
169		169	O	DQS6	Data Strobe 6
	170	170	O	DM6	Data Mask 6
171		171	-	NC	Not Connected
	172	172	-	NC	Not Connected
173		173	C	VSS	Logic Ground
	174	174	C	VSS	Logic Ground
175		175	-	NC	Not Connected
	176	176	-	NC	Not Connected

		Pin No.	I/O	Signal	Function
177		177	-	NC	Not Connected
	178	178	-	NC	Not Connected
179		179	O	VDD	Logic Power
	180	180	O	VDD	Logic Power
181		181	-	NC	Not Connected
	182	182	-	NC	Not Connected
183		183	O	DQS7	Data Strobe 7
	184	184	O	DM7	Data Mask 7
185		185	C	VSS	Logic Ground
	186	186	C	VSS	Logic Ground
187		187	-	NC	Not Connected
	188	188	-	NC	Not Connected
189		189	-	NC	Not Connected
	190	190	-	NC	Not Connected
191		191	O	VDD	Logic Power
	192	192	O	VDD	Logic Power
193		193	I/O	SDA	EEPROM Serial Data
	194	194	O	SA2	Logic Ground
195		195	O	SCL	EEPROM Serial Clock
	196	196	O	SA1	Logic Ground
197		197	O	VDDSPD	EEPROM Power
	198	198	O	SA0	Logic Ground
199		199	-	NC	Not Connected
	200	200	-	NC	Not Connected

(2) High-Voltage Power/ Sensor Board



• CN1 Connector Pin Allocation
(Connection to FAN)

Pin No.	I/O	Signal	Function
1	O	FANPOW	FAN Drive Power
2	C	FANGND	Frame Ground
3	I	FANALM-P	FAN Alarm Detection

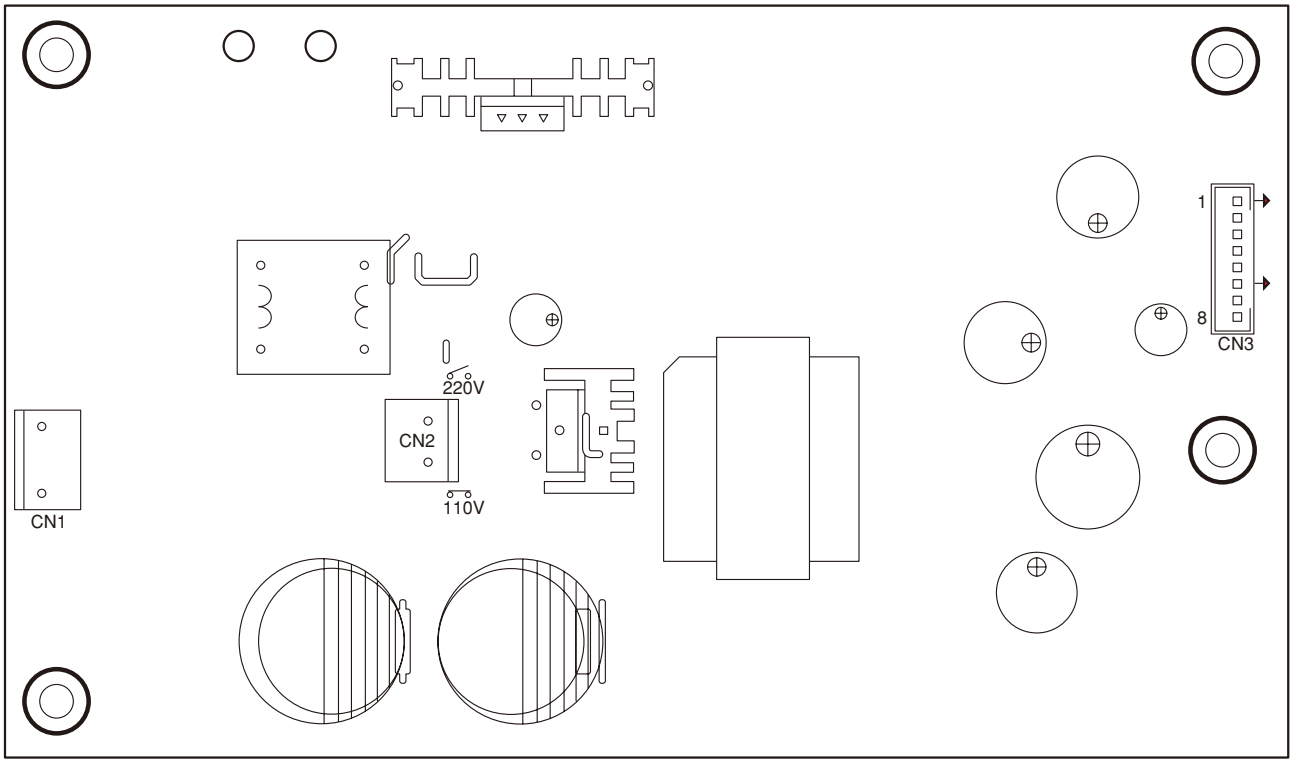
• CN2 Connector Pin Allocation
(Connection to the Fusing Thermistor)

Pin No.	I/O	Signal	Function
1	O	+5V	Sensor Power
2	-	NC	Not Connected
3	I	THERM	Fusing Temperature Detection

• CN4 Connector Pin Allocation
(Connect to Cover open switch / Toner)

Pin No.	I/O	Signal	Function
1	I	H5V	Cover Open
2	-	NC	Not Connected
3	O	+5V	Logic Power
4	I/O	1-WIRE	EEPROM 1-wire signal
5	C	GND	Frame Ground
6	O	FUSECUT	Fuse-Cut Signal

(3) Low-Voltage Power



• CN1 Connector Pin Allocation
(Connection to the Fusing AC Supply)

Pin No.	I/O	Signal	Function
1	-	AC(LIVE)	FAN Drive Power
2	NC	-	Blank
3	-	AC(NEUTRAL)	Fan Alarm Detection

• CN2 Connector Pin Allocation

Pin No.	I/O	Signal	Function
1	-		
2	-		

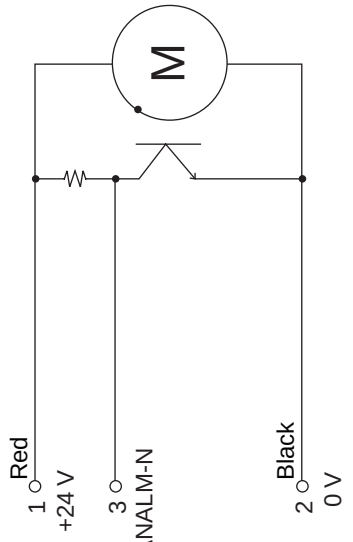
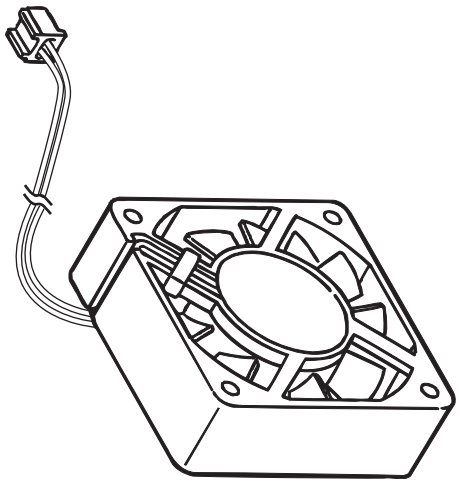
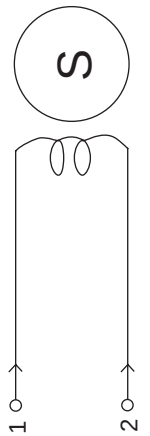
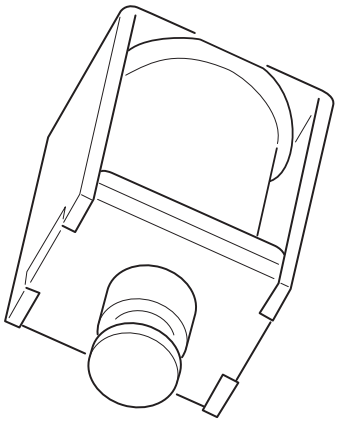
*When shoring out, it responds to 110v power voltage, and if it is open, it responds to 220V.

• CN3 Connector Pin Allocation
(Connection to the Main Control Board)

	Pin No.	I/O	Signal	Function
1	1	I	HEATON-N	Heater ON
2	2	O	+5V	Logic Circuit Power Supply
3	3	O	+5V	Logic Circuit Power Supply
4	4	C	GND	Logic Ground
5	5	C	GND	Logic Ground
6	6	O	ZCROSS	AC Zero Cross Signal
7	7	C	0VP	Analog Ground
8	8	O	+24V	Motor/ Fan/ Clutch Drive Power

7.3 Resistance value

Unit	Circuit Diagram	Part Diagram	Resistance Value
Clutch (Hopping) (Regist) (MP Tray)			Between 1 to 2 pin 192Ω
Fuser Unit Assy			1Between 1 to 2 pin: 1.6 Ω Between 3 to 4 pin: 360KΩ At the ambient temperature (25°C)

Unit	Circuit Diagram	Part Diagram	Resistance Value
FAM Motor			
Solenoid			Between 1 to 2 pin: 89Ω

Appendix A Centronics Parallel Interface

(1) Connector

- Printer side : 36 Pole Receptacle (Female)
  Equivalent to 57RE-40360-730B-D29A Model (DDK Ltd.)
- Cable side: 36 Pole Plug (Male)
  Equivalent to 57FE-30360-20N(D8) Model (DDK Ltd.)

(2) Cable

Cables compatible with IEEE Std 1284-1994 under 1.8mm (or equivalent product) should be used. (It is recommended to use twisted pair cable with shield for noise control.)

Note! The cable is not included in the printer. Moreover, you can not purchase it from the Oki Data Corporation.

(3) List of Parallel I/F Signals

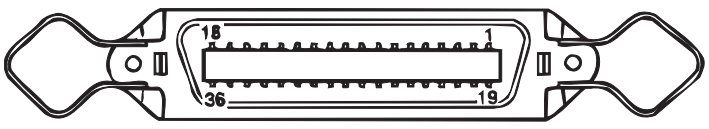
Pin No	Signal Name	Direction	Function
1	nStrobe(HostClk)	TO PRINTER	Pulse to read data. The data is read at the posterior border.
2	DATA 1	TO PRINTER	8-bit parallel data The high level is “1” and the low level is “0”.
3	DATA 2		
4	DATA 3		
5	DATA 4		
6	DATA 5		
7	DATA 6		
8	DATA 7		
9	DATA 8		
10	nAck(PtrClk)	FROM PRINTER	Signal to show that the data reception is completed. It is outputted at the posterior border of the busy signal.
11	Busy(PtrBusy)	FROM PRINTER	Signal to show whether the printer can receive data. The data can not be received at the high level.
12	PError(AckDataReq)	FROM PRINTER	The device becomes the high level when it out of paper in a selected feeder.
13	Select(Xflag)	FROM PRINTER	Always the high level.
14	nAutoFd(HostBusy)	TO PRINTER	It is used in the bi-directional communication.
15	Not used	−	Not connected.
16	GND	−	Signal Ground
17	FG	−	Chassis Ground
18	HILEVEL	FROM PRINTER	It is pulled up to 3.3Ω and +5V in the printer.
19~30	GND	−	Signal Ground
31	nInit(nInit)	TO PRINTER	When the low level is continued at 50µS or more, the printer is initialized. It may be enabled at 50µS or less. This signal is ignored at the factory default.
32	nFault(nDataAvail)	FROM PRINTER	It becomes the low level when the printer is in the alarm status.
33	GND	−	Signal Ground
34	Not used	−	Not Connected
35	HILEVEL	FROM PRINTER	It is pulled up to 3.3Ω and +5V in the printer.
36	nSelectIn (IEEE1284 active)	TO PRINTER	It is used in the bi-directional communication.

(Note 1) The word in parentheses is a signal name of the nibble mode.

(Note 2) Only the function of the compatible mode is described.

(Note 3) This printer supports the nibble ode of IEEE std 1284-1994 prescribed by Institue of Electrical and Electronic Engineers. When using computers or cables not compatible with this standard, unexpected operations may occur.

• Connector Pin Allocation



(4) Signal Level

• LOW : 0V to +0.4V

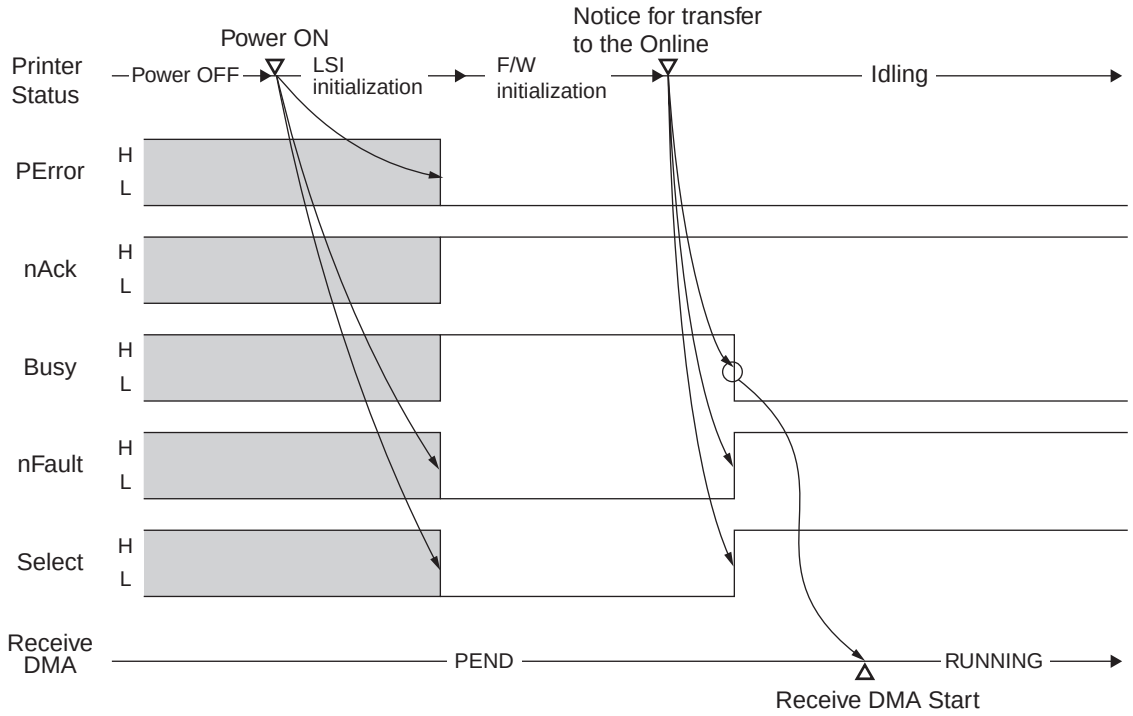
• HIGH : +2.4V to 5.0V

(5) Specification

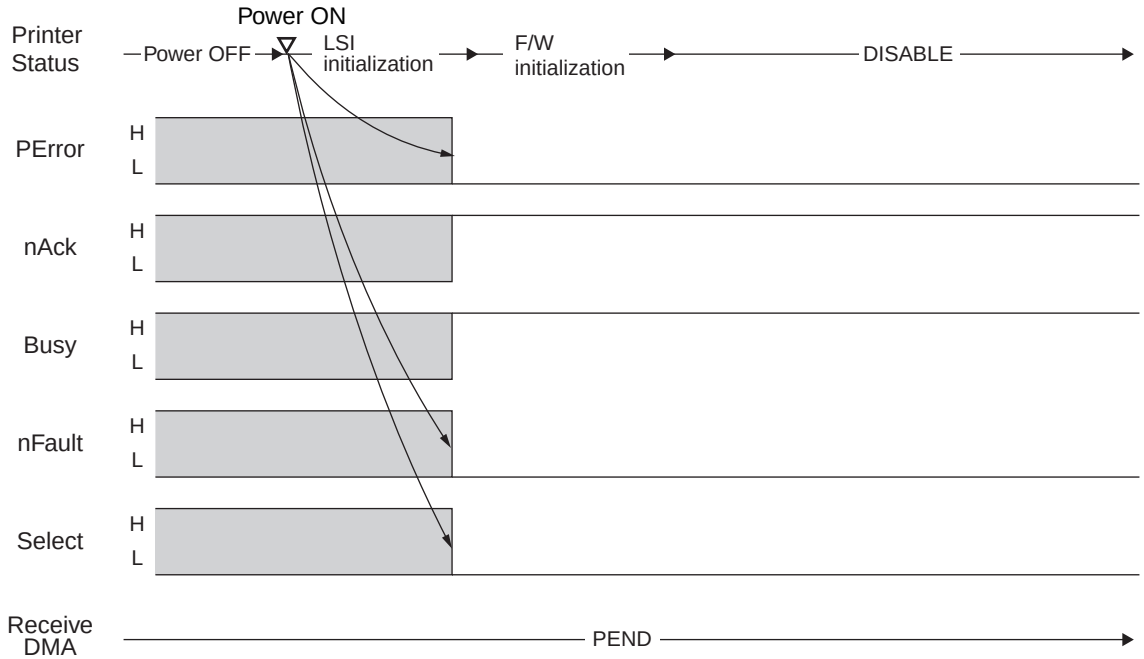
Item	Contents
Mode	Compatible mode, Nibble mode, and ECP mode
Data Bit Length	8 bit (Compatible mode)
Input Prime	Enable/ Disable
Receive Buffer	8K, 20K, 50k, 100k, 1M Byte
Control	The handshake control is performed in each mode. Data received from the host is store in the Receive buffer. Busy control is performed. Signal read control is performed.

(6) Time Chart

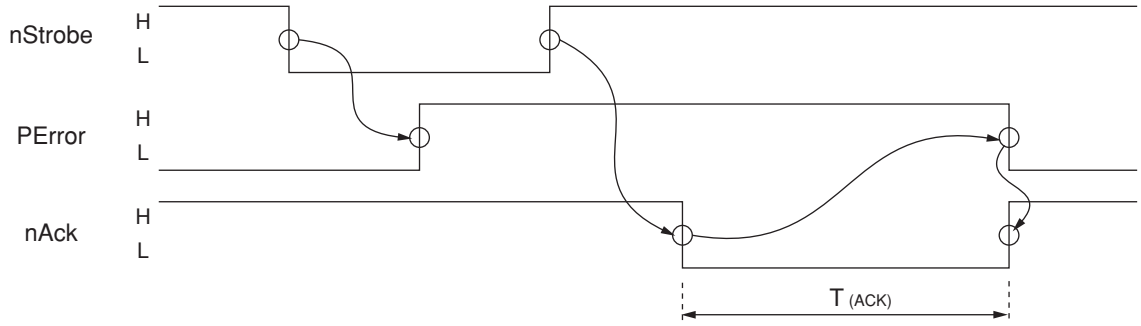
a) At the Power ON (Menu Setting: PARALLEL=ENABLE)



b) At the Power ON (Menu Setting : PARALLEL=ENABLE)

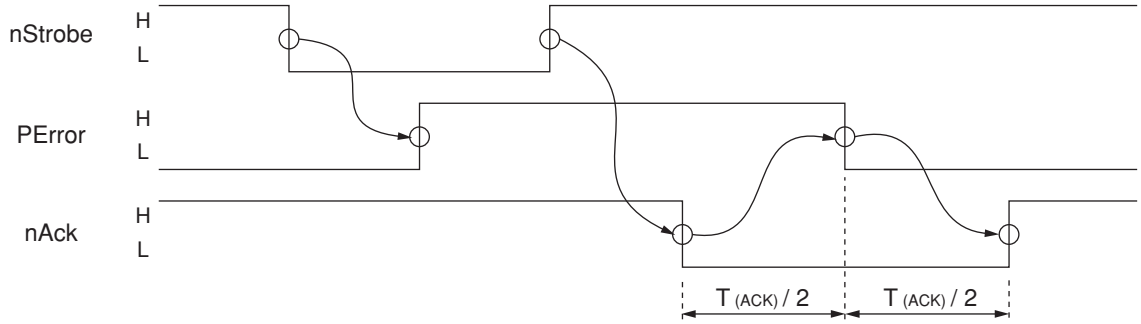


C) Data Reception (Menu Setting: Ack/ Busy Timing= Ark in Busy)



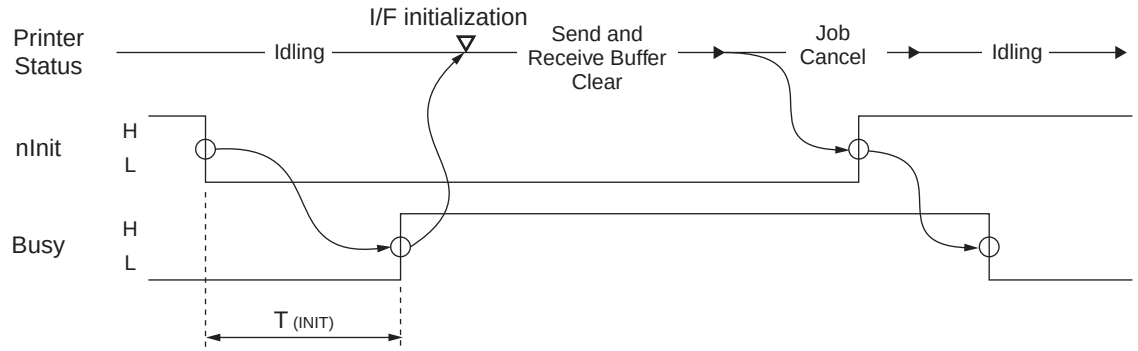
Menu Setting (Ack Width)	NARROW	MEDIUM	WIDE
T (ACK)	0.5 us	1.0 us	3.0 us

d) Data Reception (Menu Setting: Ack/ Busy Timing= Ark in Busy)



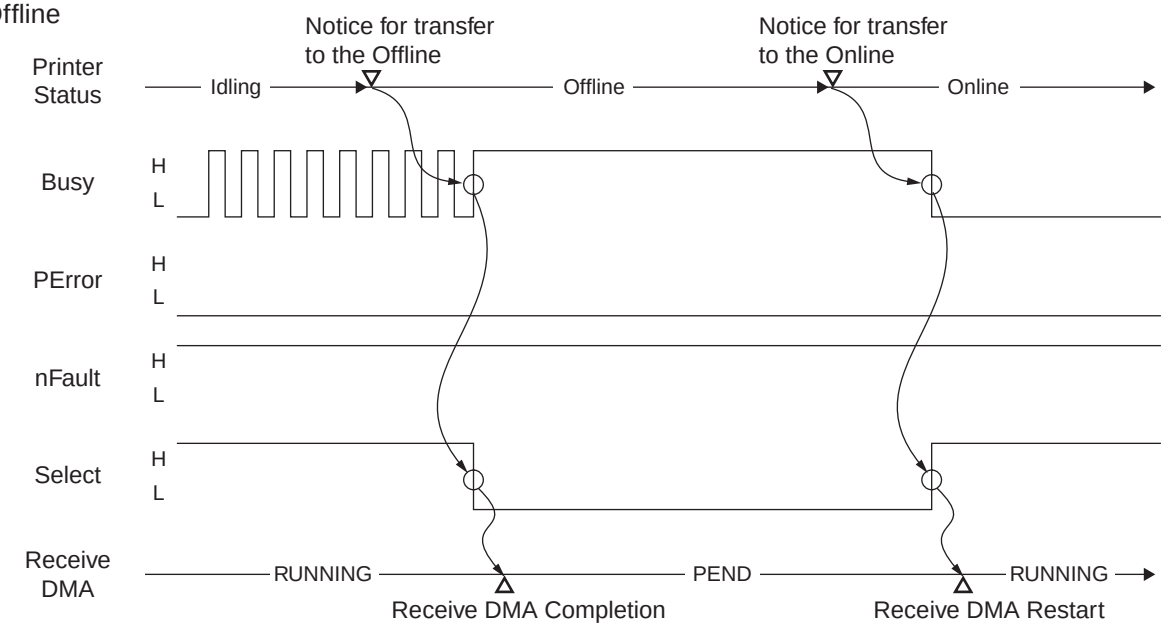
Menu Setting (Ack Width)	NARROW	MEDIUM	WIDE
T (ACK)	0.5 us	1.0 us	3.0 us

e) I-Prime (When Menu Setting is not I-PRIME=DISABLE)

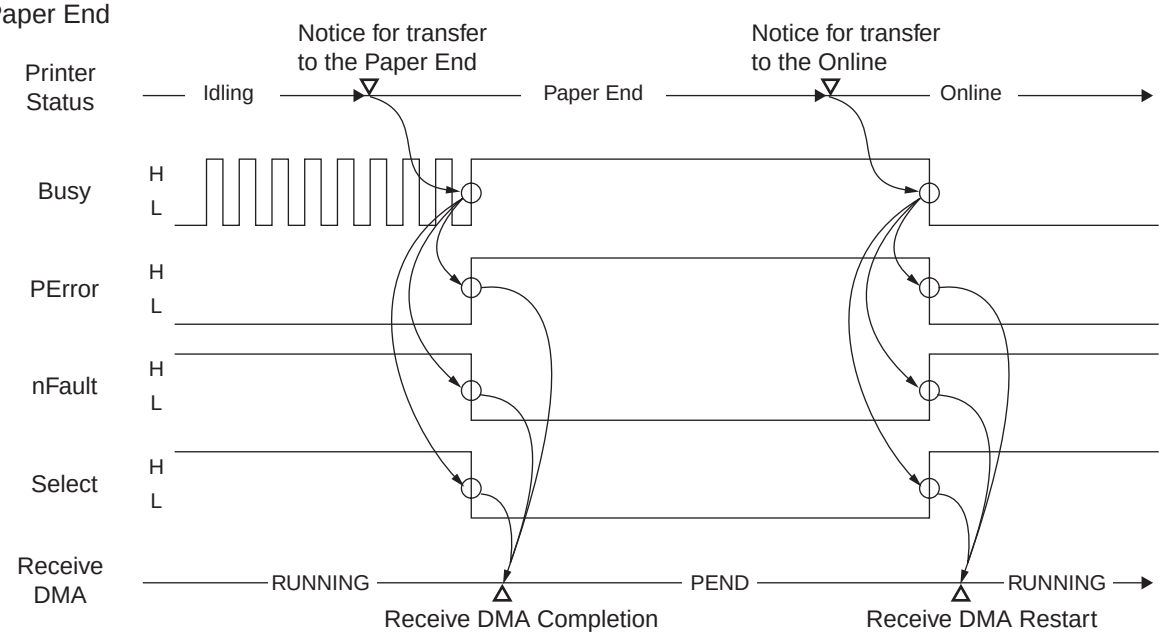


Menu Setting (I-PRIME)	3 MICRON SEC	50 MICRON SEC
T (INIT)	2.0 us	33.3 us

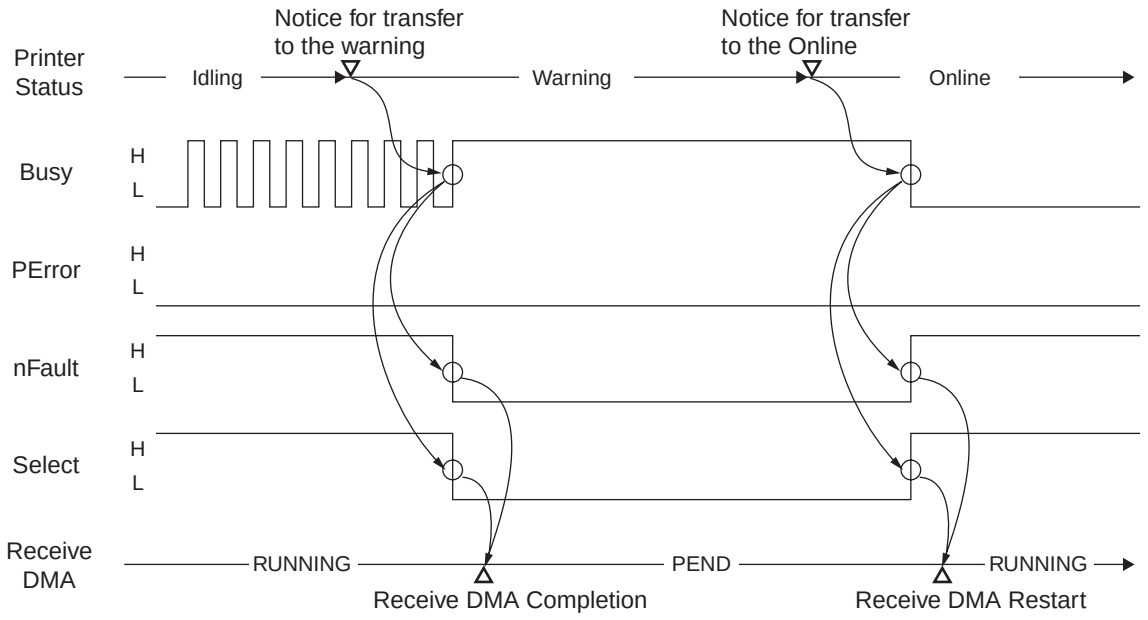
f) Offline



9) Paper End



h) Warning (Other than the Paper End)



(7) Interface Parameter Setting

This is a procedure to perform on the operator panel of the printer (B420/ B430/ B440 series).
In the setting of B410 series, use "Printer Menu Setup Tool".
By pressin the "Enter" key after selecting a display content of the operator panel with the "Menu ▲" key or "Menu ▼" key, the following setting is available.

The setting is not changed even if turning of the printer.
By pressing the "Online key", the printer exits the menu setting mode, and returns to the offline status.

Online

⇩

Press the "Menu ▲" key 9 times.

⇩

Centronics Menu [Centronics Menu] is shown on the display.

⇩

Press the "Enter" key.

⇩

Centronics
Enable *

Items	Enable/ Disable of Centronics I/F
Display	Function
Enable	Enable
Disable	Disable

Factory Default: Enable

⇩

Press the "Menu ▲" key.

⇩

Bidirectional Centronics
Enable *

Items	Data Transfer Direction
Display	Function
Enable	Bi-directional data transfer
Disable	Unidirectional data transfer

Factory Default: Enable

⇩

Press the "Menu ▲" key.

⇩

ECP
Enable *

Items	Enable/ Disable of ECP Mode
Display	Function
Enable	Enable
Disable	Disable

Factory Default: Enable

⇩

Press the "Menu ▲" key.

ACK Width
Narrow *

Items	ACK width at compatible receiving
Display	Function
Narrow	0.5µs
Normal	1.0µs
Wide	3.0µs

Default Setting: Narrow

Press the "Menu ▲" key.

ACK/ BUSY Timing
ACK IN BUSY *

Items	Output order of BUSY signal and ACK signal at compatible receiving
Display	Function
ACK IN BUSY	BUSY=LOW is at the posterior border of ACK pulse
ACK WHILE BUSY	BUSY=LOW is at the center of ACK pulse

Factory Default: ACK IN BUSY

Press the "Menu ▲" key.

I-PRIME
DISABLE *

Items	I-PRIME
Display	Function
Disable	I-PRIME signal is ignored.
3 microseconds	Enable at the I-PRIME signal of 3µs
50 micro seconds	Enable at the I-PRIME signal of 50µs

Factory Default : 50 Micro seconds (B410 series)
Disable (B420/ B430/ B440 series)

Press the "Menu ▲" key.

OFFLINE RECEIVE
DISABLE *

Items	Enable/ Disable of Offline Receiving
Display	Function
Disable	Disable
Enable	Enable I/F signal does not change and still keep in signal receivable status even the alarm sounds.

Factory Default: Disable
*It is displayed only when PSE is installed.

Press the "Online" key.

Online

The setting is completed.

Appendix B USB Interface

(1) Connector

- Printer side : B Receptacle (Female) (Upstream port)
  Equivalent to USB-4R-D14T-1 (JST Mfg. Co., Ltd.)
- Cable side : B Plug (Male)

(2) Cable

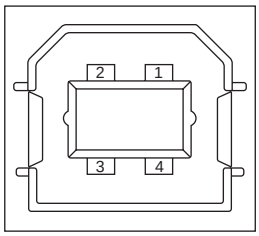
- Cable with USB 2.0 specification under 2.0m (It is recommended to use a shielded cable.)

Note! The cable is not included.

(3) Interface Signal

Connector No.	Signal	Function
1	vbus	Power (+5V) (Red)
2	D-	For data transfer (White)
3	D+	For Data transfer (Green)
4	GND	Signal Ground (Black)
Shell	Shield	

(4) Connector Pin Allocation



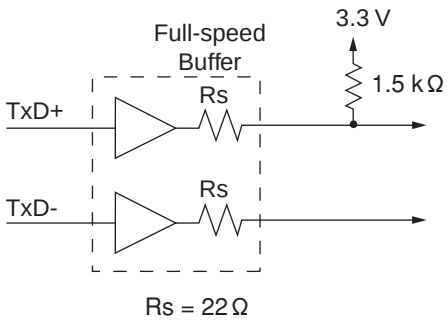
(5) Format and Type

- Full-speed transmission
- Self-power device

(6) Data Transfer Speed

- Full-speed 12Mbps

(7) Interface Circuit



(8) Signal Level

- Input and Output Level

Parameter	Signal	Minimum	Maximum	Unit
Input level:				
High (Driven)	VIH	2.0		V
High (Floating)	VIHZ	2.7	3.6	V
Low	VIL		0.8	V
Output level:				
Low	OL	0.0	0.3	V
High (Driven)	OH	2.8	3.6	V
Output signal crossover voltage	VCRS	1.3	2.0	V

- Signal level

Bus Status	Signal Level	
	Request	Acceptance
Difference "1"	(D+) - (D-) > 200mV and D+ > VIH (Min.)	(D+) - (D-) > 200mV
Difference "0"	(D-) - (D+) > 200mV and D- > VIH (Min.)	(D-) - (D+) > 200mV
Single-ended 0 (SE0)	D+ and D- < VIL (Max.)	D+ and D- < VIH (Min.)
Data J state: Low speed Full speed	 Difference "0" Difference "1"	
Data K state: Low speed Full speed	 Difference "1" Difference "0"	
Idling State Low Speed Full Speed	 D- > VIHZ (Min.) and D+ < VIL (Max.) D+ > VIHZ (Min.) and D- < VIL (Max.)	 D- > VIHZ (Min.) and D+ < VIH (Min.) D+ > VIHZ (Min.) and D- < VIH (Min.
Restart State	Data K State	
Start of the packet (SOP)	The data line switches from the idling to the K state	
End of the Packet (EOP)	¶ SEO of 1 bit time, and then, J state of I bit time	1 ≥ SEO of 1 bit time, and then, J state.
Not connected (Downstream port)	SEO in ≥ 2.5µs	
Connected (Downstream port)	Idling in ≥ 2.5µs	Idling in ≥ 2.5µs
Reset	In ≥ 10ms, D+ and D- < VIL (Max.)	In ≥ 2.5µs, D+ and D- < VIL (Max.)

Note! The EOP width is defined by the bit time for a device type of the device receiving EOP. The bit time is an approximate value.

Appendix C Maintenance Manual for Second Tray unit

1 Overview

1.1 Function

The extended paper feed unit is installed under the printer. the device performs the auto paper feed by the operation of the pulse motor (hopping) to control a signal from the printer.
The main function is as follows:

- Available paper:

[Paper Type]
- Standard paper: (Ream weight 55 to 105 kg) A4, A5, B5, Custom, LETTER, Executive, LEGAL 13, LEGAL14
  *Tthe custom is 148 to 215.9mm for width and 210 to 355.6 mm for length.

[Weight/ Thickness]
- Standard paper (Ream weight 55 to 105kg)

1.2 Exterior and Parts Name

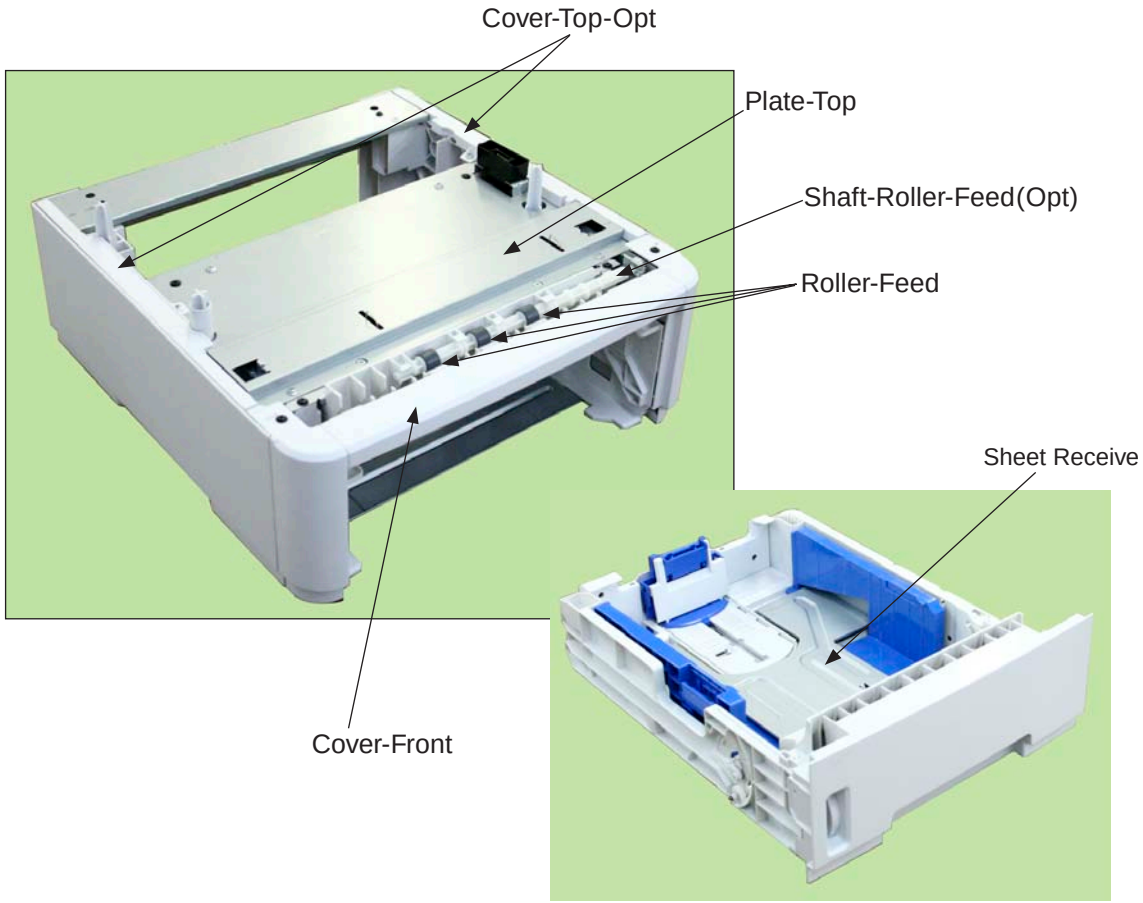


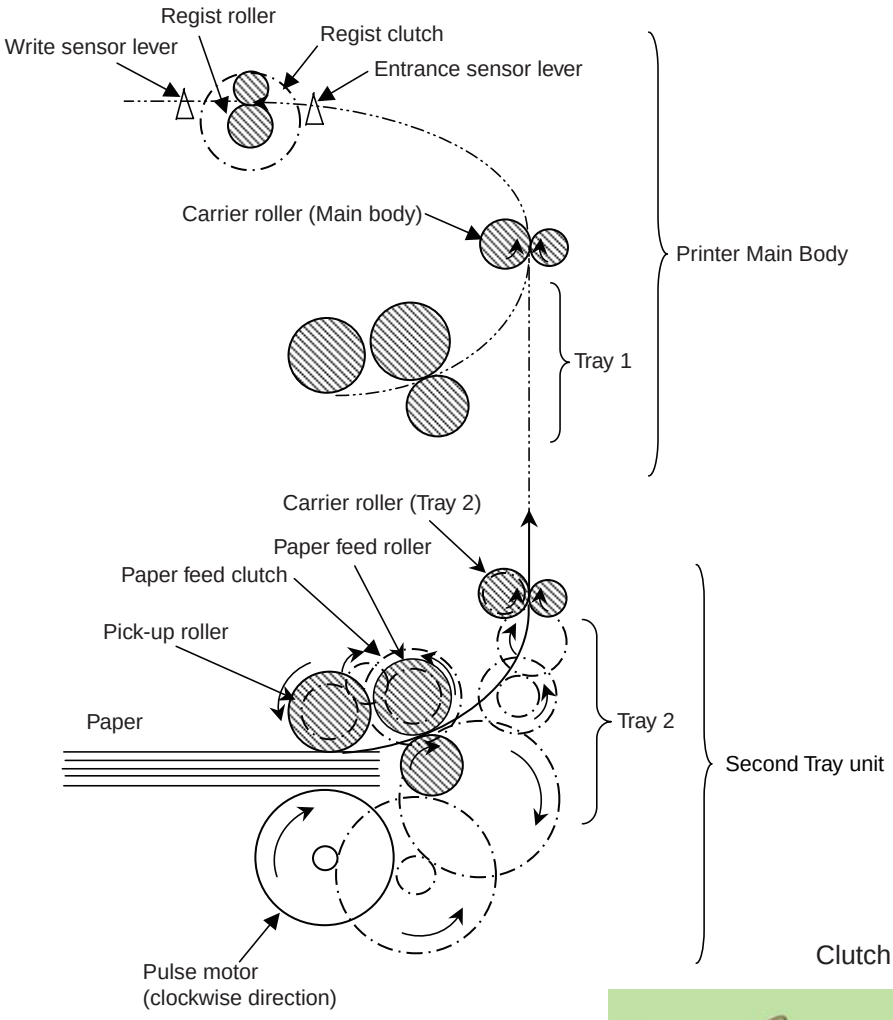
Figure.1-1 Exterior and Parts Name

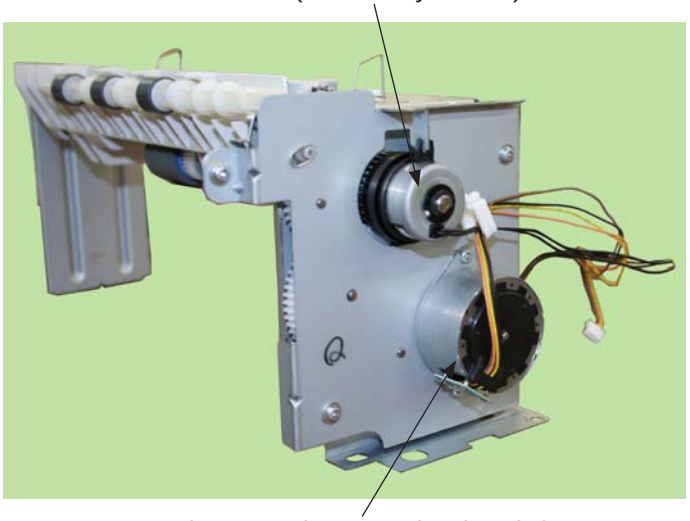
2. Description for Operation of Second Tray unit

Second Tray unit receives a signal from the printer main body and feeds paper to the printer main body.

Paper Feed from the Second Tray unit (Tray2)

1. When a signal is received from the printer main body, the pulse motor is rotated (in a clockwise direction), and by setting the paper feed clutch to ON, the paper feed roller and pick-up roller are rotated. Therefore, paper in a tray is fed.
2. After paper is carried by the transfer roller (Tray 2) and transfer roller (main body) to set the entrance sensor lever to ON, the paper goes into the regist roller, and a certain volume of paper is carried. (the skew is adjusted due to this operation.)
3. By setting the regist clutch to ON, the paper is carried by the regist roller.





3. Part Replacement

This section describes how to disassemble/ assemble/ install in the field. This section describes how to disassemble, however, as for the assembly, take the opposite sequence to the disassembling procedure.

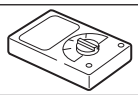
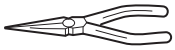
3.1 Precautions on replacing parts

(1) Make sure to turn off the printer switch and remove the printer from the device before the part replacement.
(2) Do not disassemble the printer while it operates normally.
(3) Do not disassemble beyond the range. (Do not remove parts other than parts shown in the part replacement procedure.)
(4) Use specified maintenance tools.
(5) Disassemble the parts in the specified order. Parts may be damaged if they are not disassembled in proper order.
(6) Set small items such as screws and collars in their original position temporarily since they can be lost easily.
(7) Do not use gloves that build up static electricity when treating a print circuit board
(8) Do not place the print circuit board on the device or floor directly.

[Maintenance Tool]

The following table shows the tools for the print board/ Assy/ Unit replacement in the field.

Table 3-1 Maintenance Tools

No.	Maintenance Tool		Amount	Purpose	Remarks
1		No.2-220 Phillips screwdriver	1	3 to 5 mm screw	
2		No.3-200 screwdriver	1		
3		Digital multi-meter	1		
4		Pliers	1		
5		E-ring plier	1	For removing and installing E rings	

3.2 Arrangement of Parts

The arrangement of main parts is as shown in the following figure.

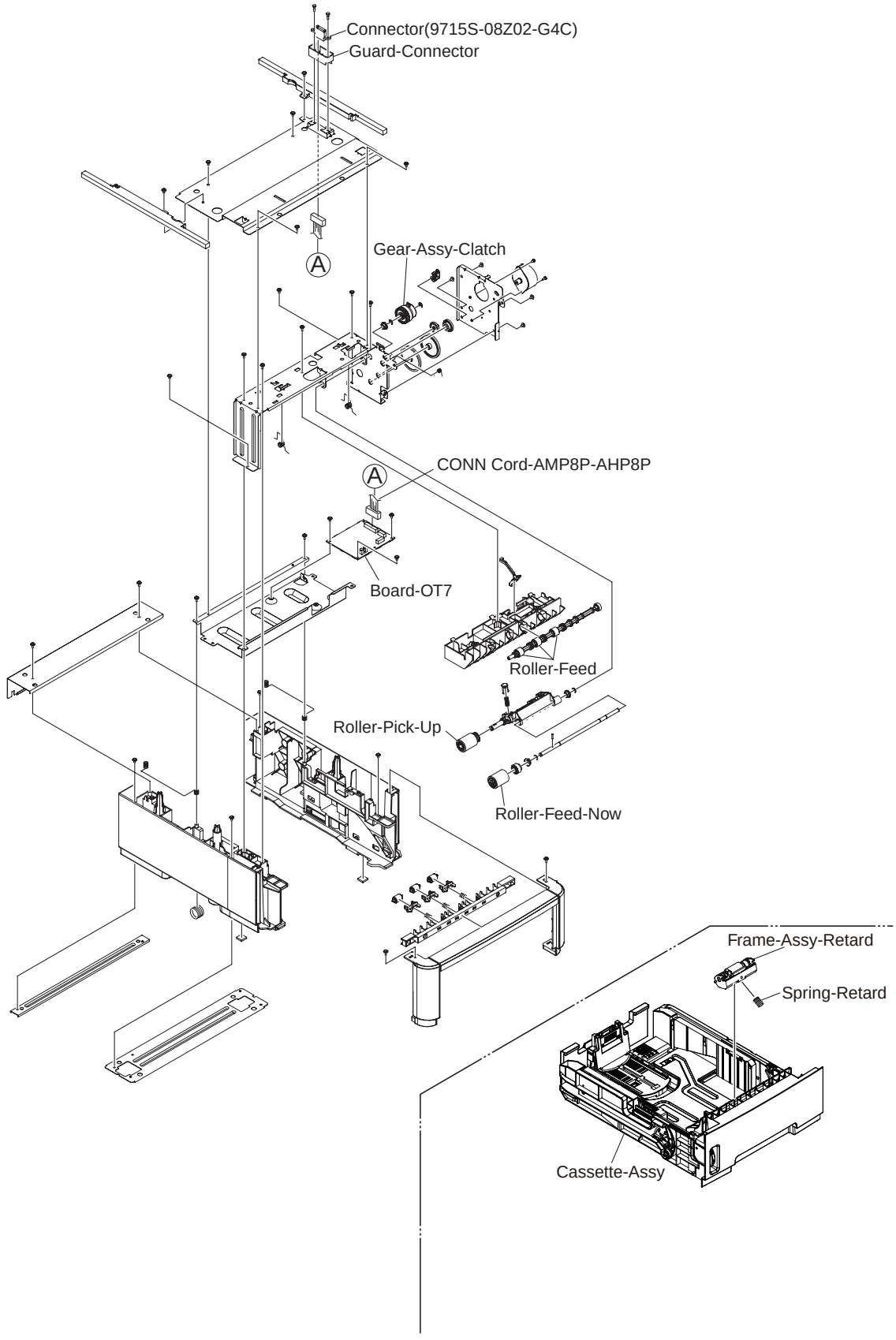


Figure 3-1

3.3 How to Replace Parts

This section describes how to replace parts shown in the following disassembling procedure.
In the part replacement procedure, parts on which a part number is displayed in white figure in the black circle are RSPL.

- Second Tray unit
  - Roller-Pick-Up, Roller-Feed-Now (3.3.1)
  - Guard-Connector, Connector(9715S-08Z02-G4C) (3.3.2)
  - Roller-Feed (3.3.3)
  - Board-OT7 (3.3.4)
  - CONN Cord-AMP8P-AMP8P (3.3.5)
  - Gear-Assy-Clatch (3.3.6)
  - Frame-Assy-Retard, Spring-Retard (3.3.7)

3.3.1 Roller-Pick-Up, Roller-Feed-Now

(1)Remove Cassette-Assy.

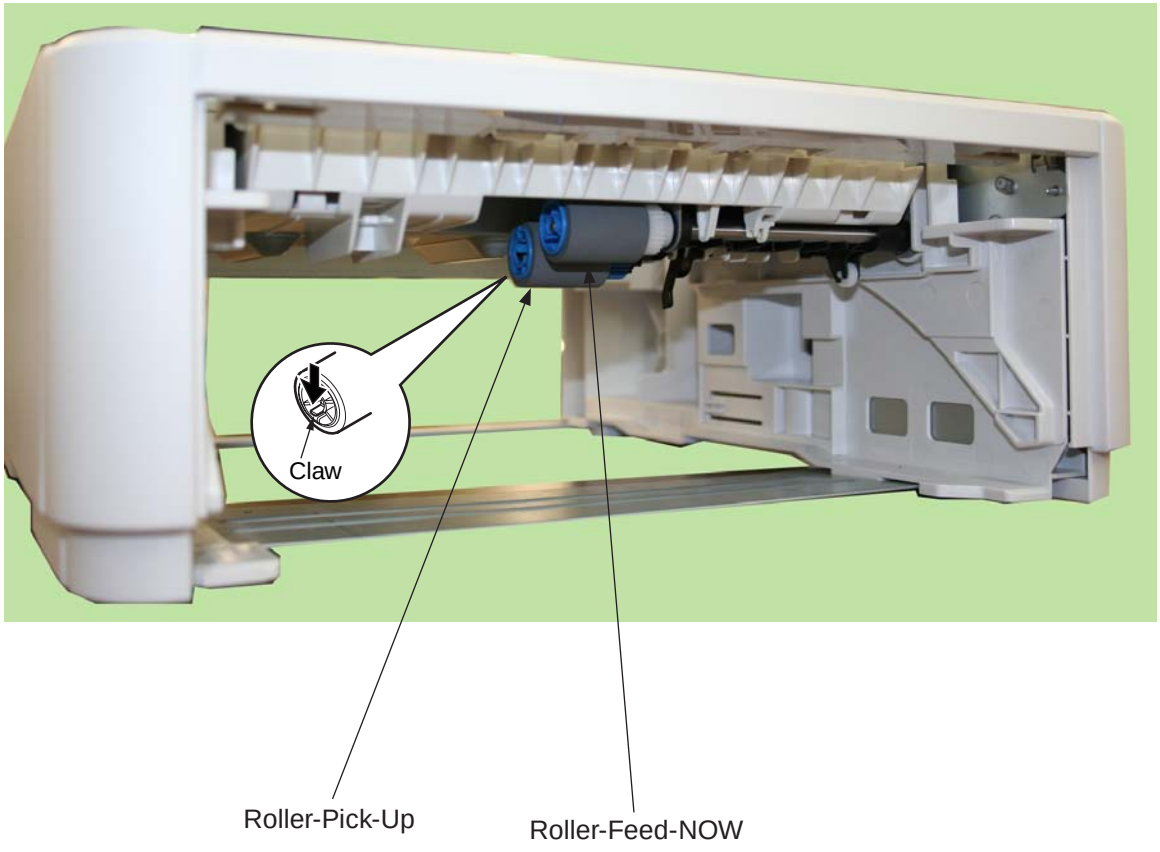
(2)Push the claw in the direction of the arrow to remove Roller-Pick-Up ❶.

(3)Push the claw in the direction of the arrow to remove Roller-Feed-NOW ❷.

(4)As for reinstalling, take the opposite sequence to removal sequence.

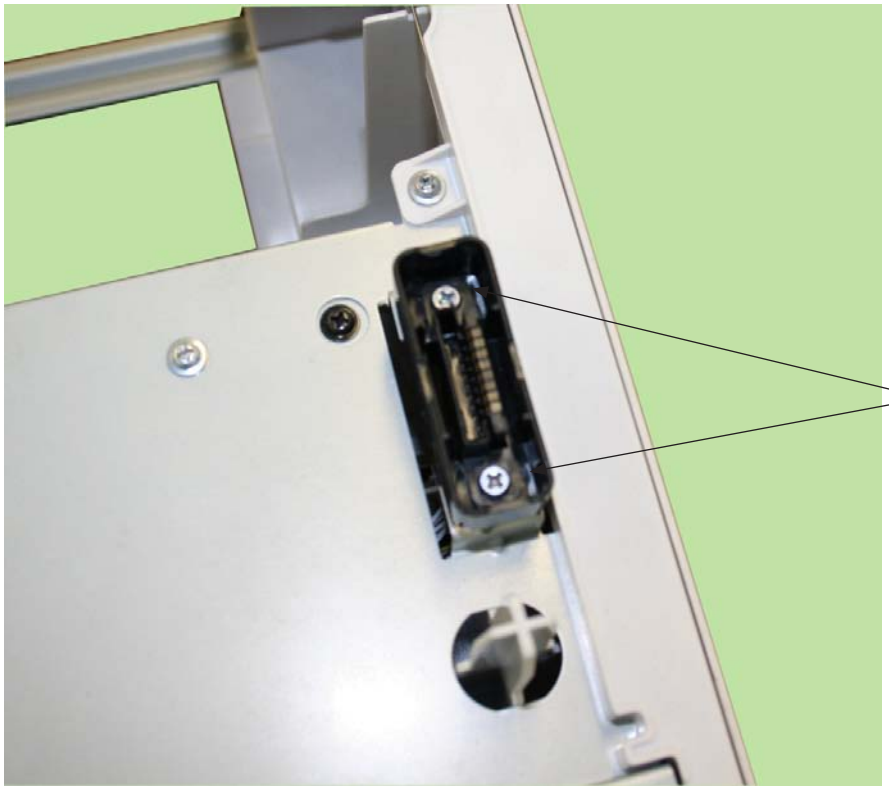
(Precautions on reinstalling)

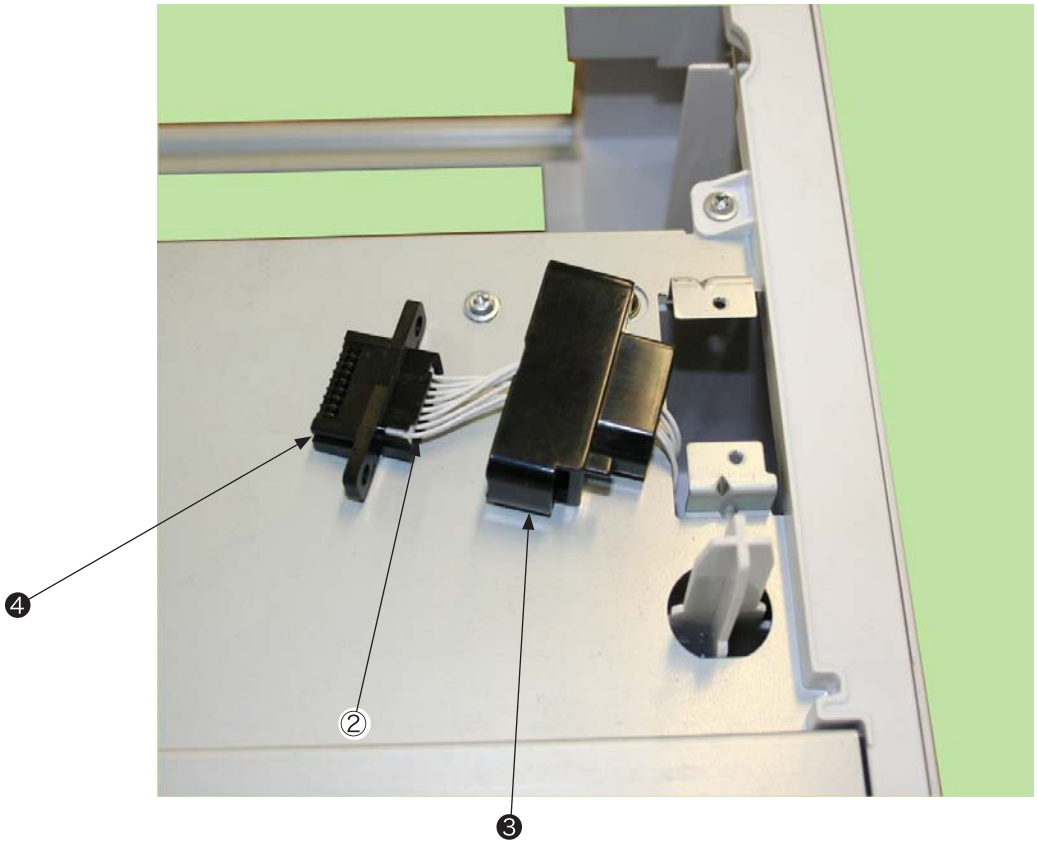
1. When reinstalling Roller-Pick-Up ❶, push it until it clicks.
2. When installing Roller-Feed-Now ❷, push it until it clicks.



3.3.2 Guard-Connector, Connector (9715S-08Z02-G4C)

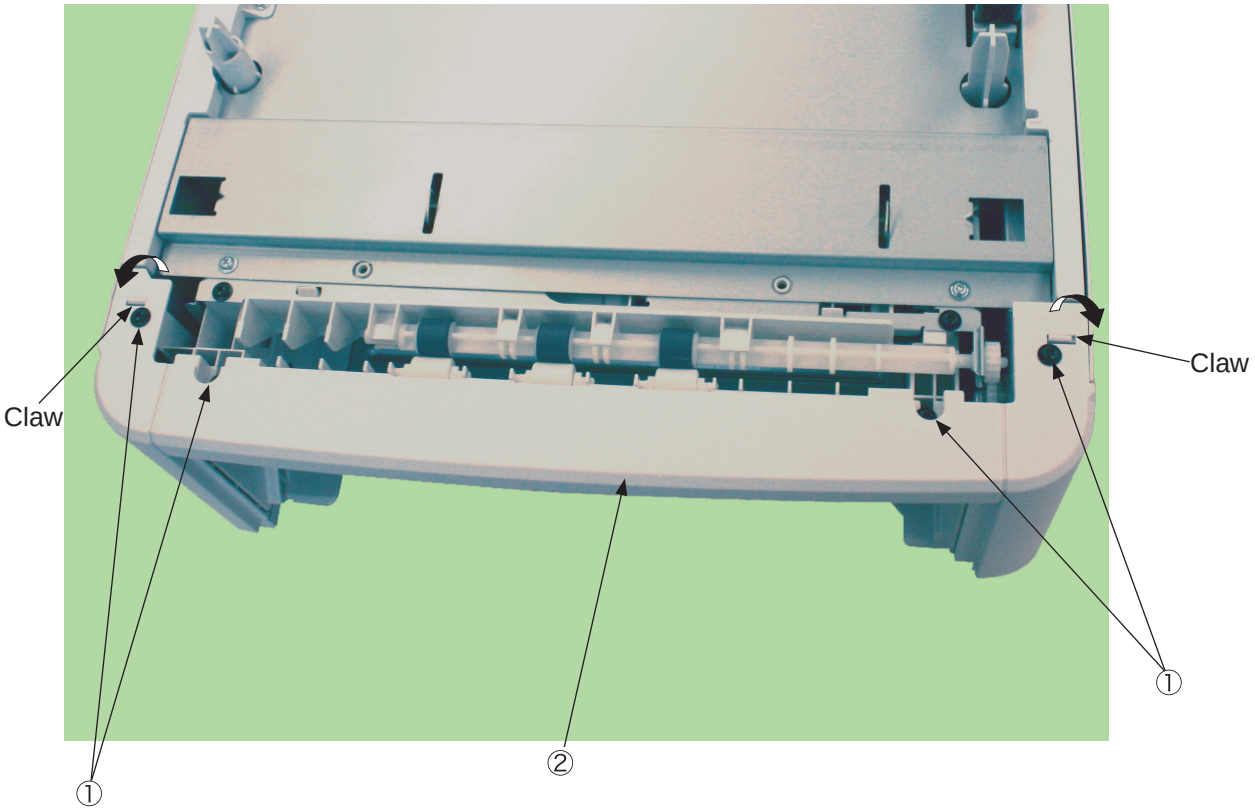
(1) Turn off the printer and pull the AC cord. Remove the printer from the device.
(2) Remove two Screw-Shoulders ①.
(3) Remove the connector ② to remove Guard-Connector ❸, Connector (9715S-08Z02-G4C) ❹.
(4) As for reinstalling, take the opposite sequence to removal sequence.

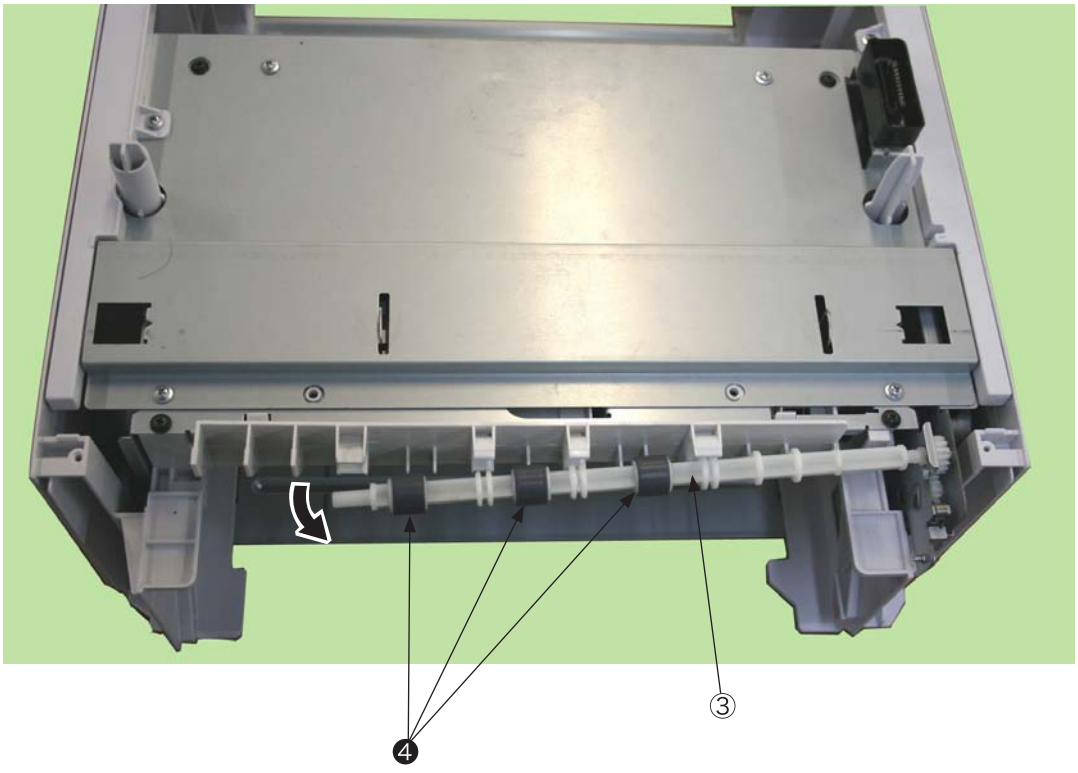




3.3.3 Roller-Feed

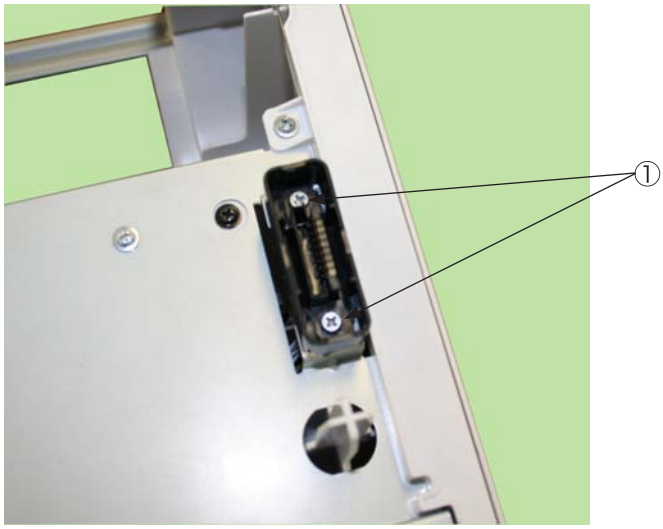
(1) Turn off the printer and pull the AC cord. Remove the printer from the device.
(2) Remove the 4 screws (Black) ①, Remove the clamp of claw at the 2 places and remove Cover-Front ②.
(3) Slide the left side of Shaft-Roller-Feed ③ to the front, and remove three Roller-Feeds ❹.

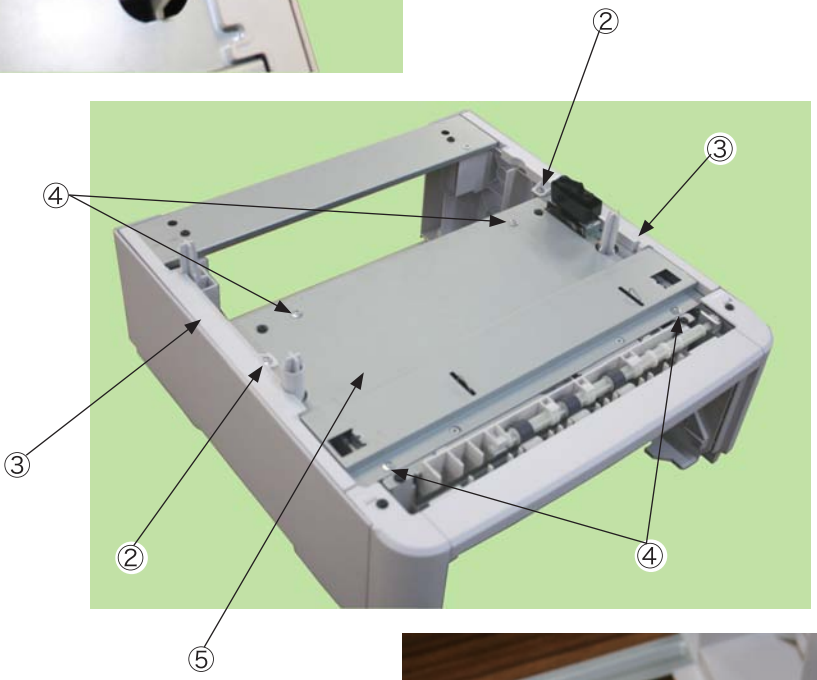


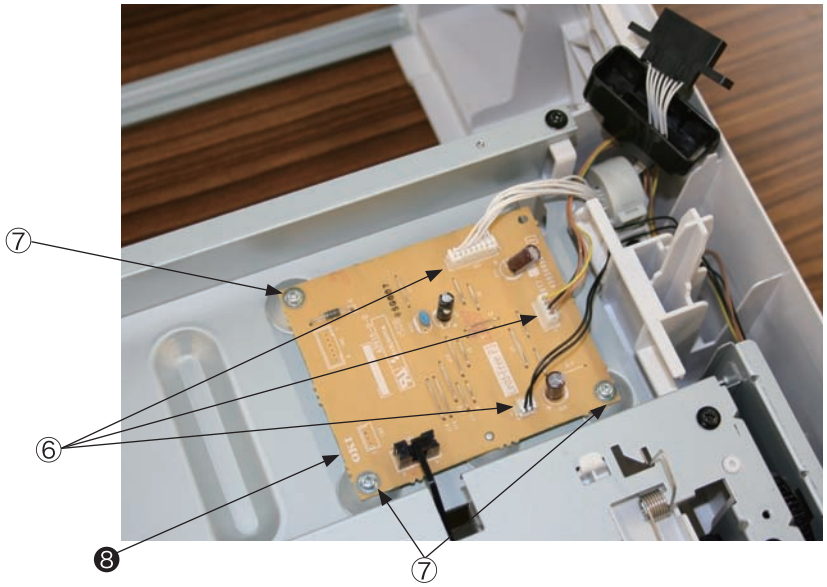


3.3.4 Board-OT7

(1) Turn off the printer and pull the AC cord. Remove the printer from the device.
(2) Remove two Screw-Shoulders ①.
(3) Remove two screws (silver) ② to remove two Cover-Top-Pot ③.
(4) Remove four screws (silver) ④ to remove Plate-Top ⑤.
(5) Disconnect the three connectors ⑥, and remove three screws ⑦ to Board-OT7 ❽.
(6) As for reinstalling, take the opposite sequence to removal sequence.







3.3.5 CONN Cord-AMP8P-AMP8P

(1) Turn off the printer and pull the AC cord. Remove the printer from the device.

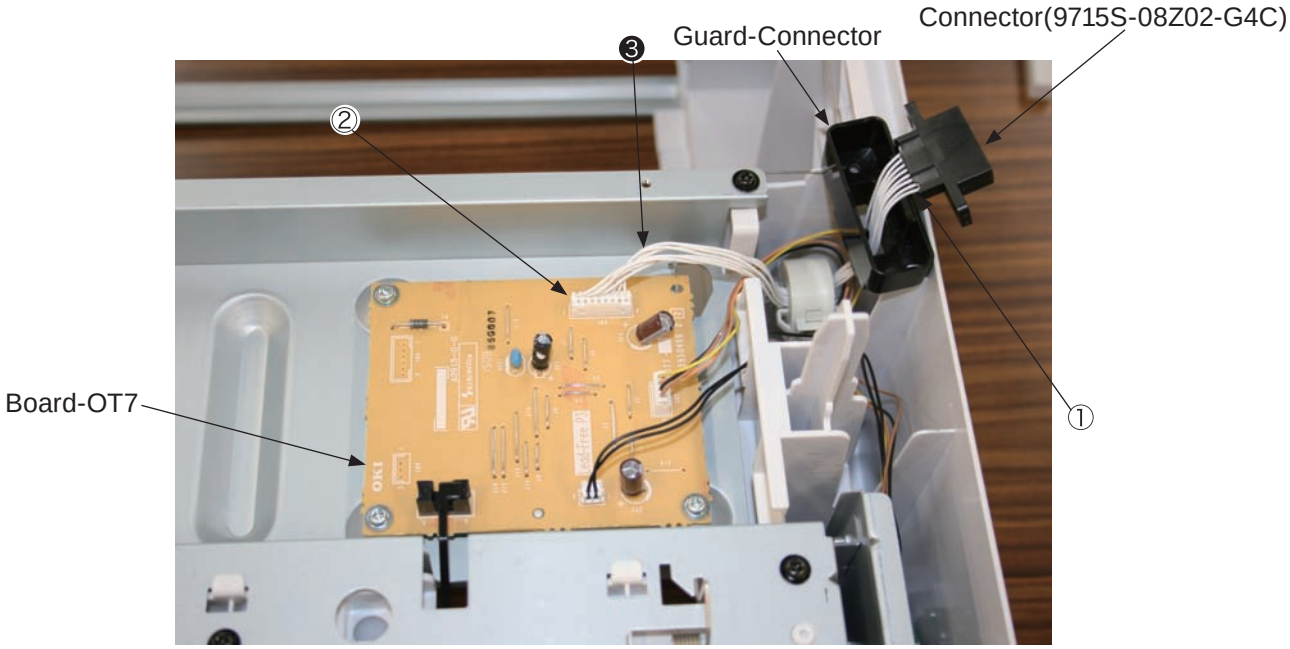
(2) Remove Plate-Top. (See 3.3.4 (2) to (4))

(3) Remove the screw (Black) that is for fixing the core.

(4) Disconnect the connector ① at the Connector (9715S-08Z02-G4C) and disconnect the connector ② at Board-OT7 to remove CONN-Cord-AMP8P-AMP8P ❸.

(Both Guard-Connector and Connector (9715S-08Z02-G4C) are removed together.)

(5) As for reinstalling, take the opposite sequence to removal sequence.

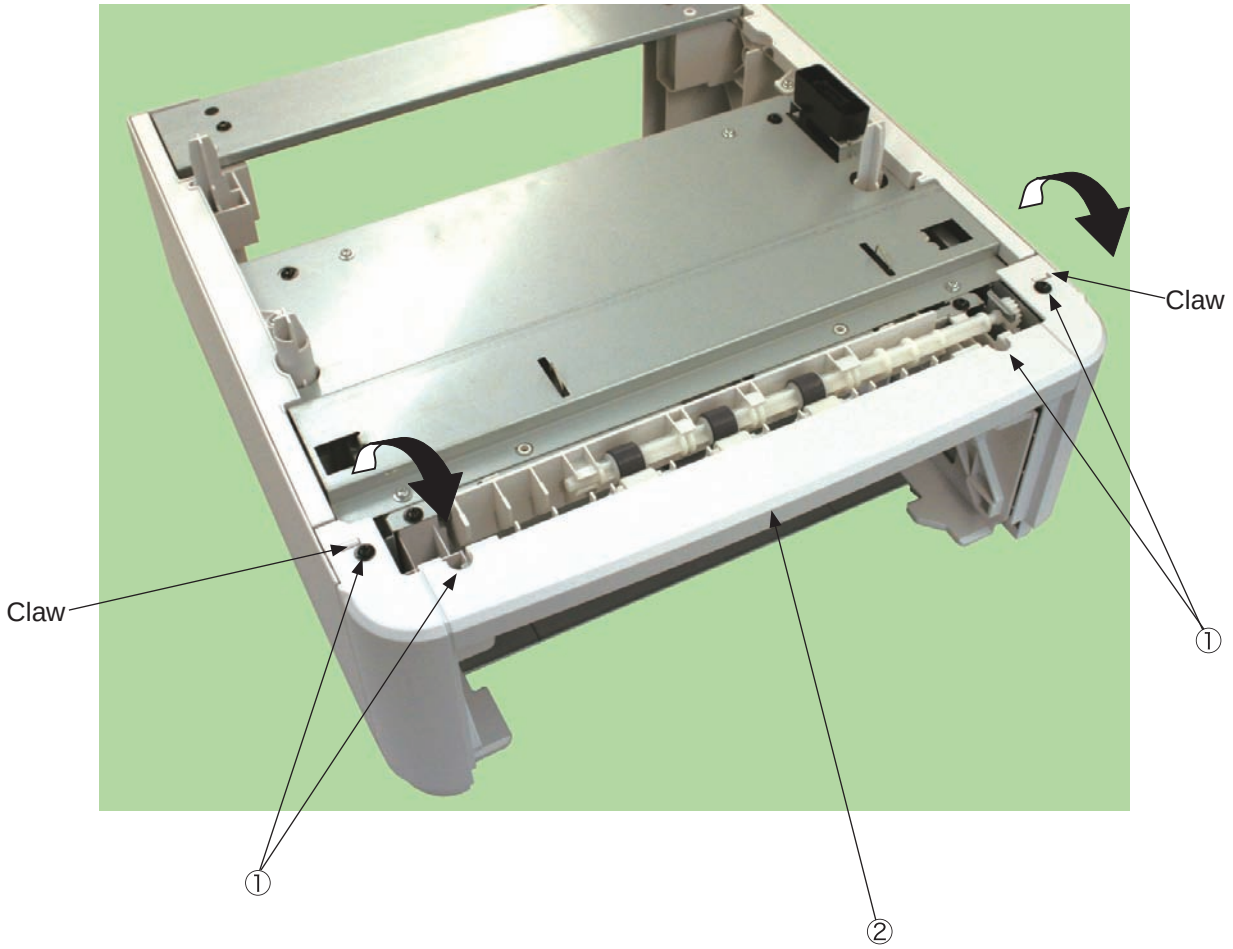


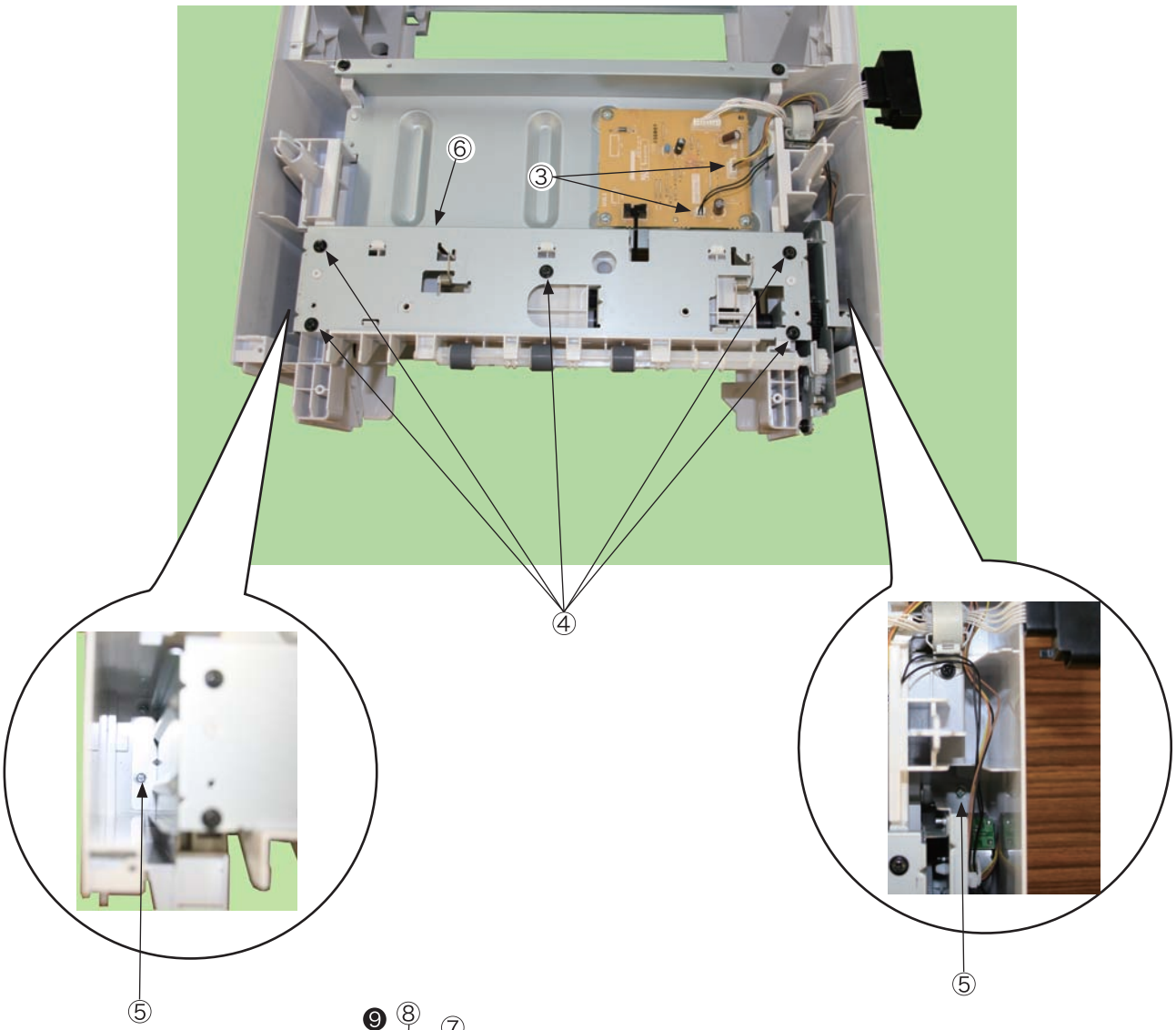
3.3.6 Gear-Assy-Clatch

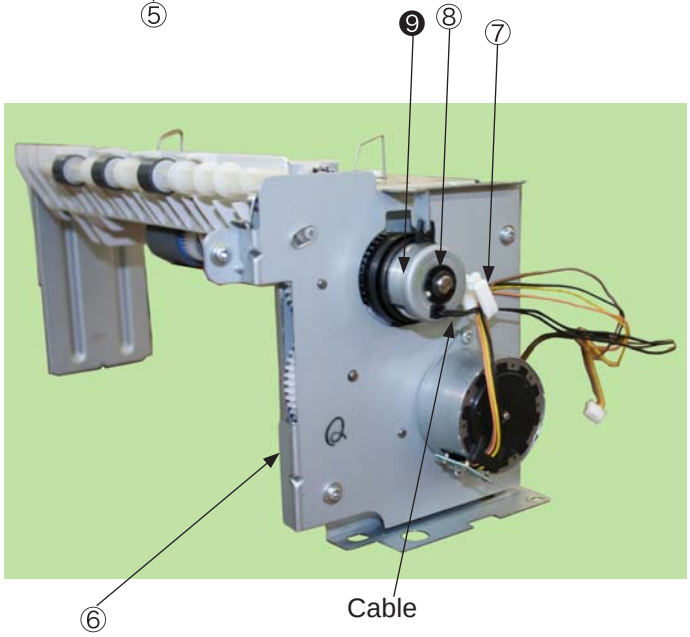
(1) Turn off the printer and pull the AC cord. Remove the printer from the device.
(2) Remove Plate-Top. (See 3.3.4 (2) to (4))
(3) Remove four screws (black) ①, and remove the clamps of two claws to remove Cover-Front ②.
(4) Disconnect two connectors ③.
(5) Remove five screws (black) ④ and two screws (silver) ⑤ to remove Plate-Hop (Caulking)-Assy ⑥.
(6) Remove the cable from Clamp-Cable ⑦, and remove E ring ⑧ to remove Bear-Assy-Clatch ❾.
(7) As for reinstalling, take the opposite sequence to removal sequence.

(Precautions on reinstalling)

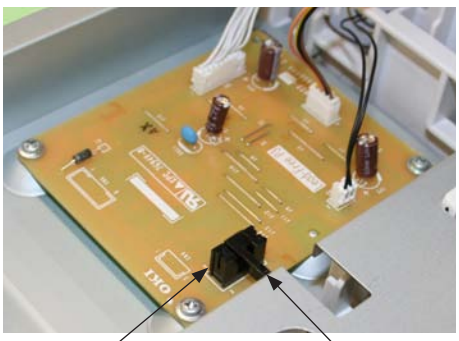
1. When reinstalling Plate-Hop (Caulking)-Assy ⑥, check that Lever-Paper-End is in a position shown in the figure for the sensor of Board-OT7.







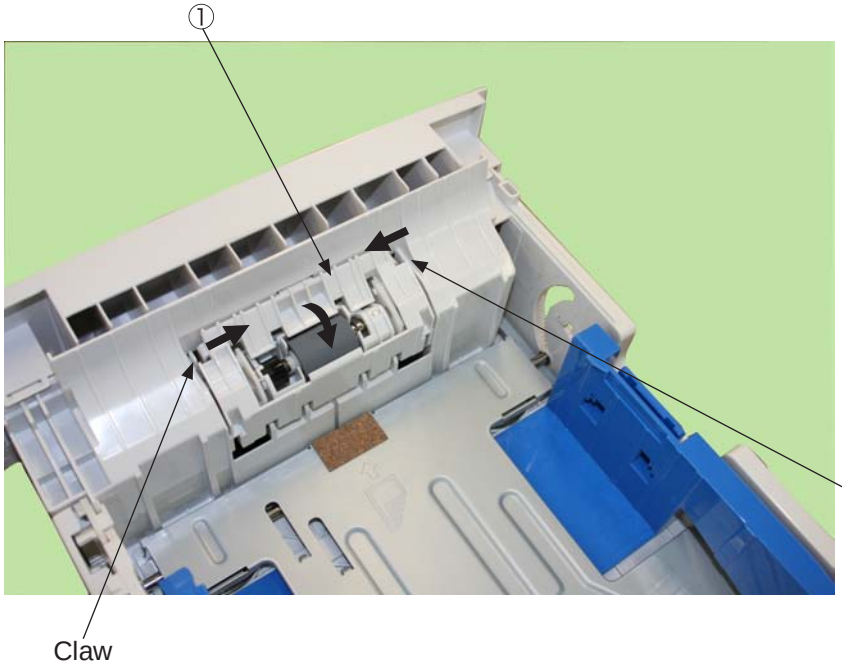
Positions of Lever-Paper-End and Sensor

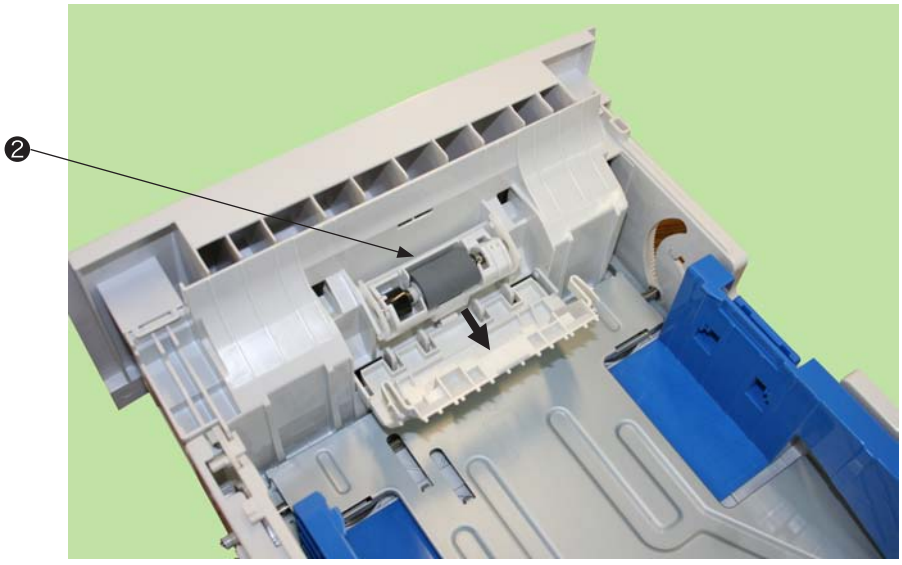


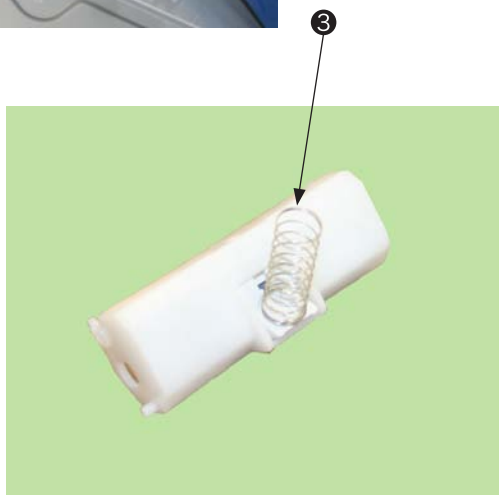
The top of the Lever-Paper-End should be in the groove of the sensor.

3.3.7 Frame-Assy-Retard, Spring-Retard

(1) Detach Cassette-Assy.
(2) Push two claws in the direction of the arrow to remove Retard-Cover ①.
(3) Push Frame-Assy Retard ❷ in the direction of the arrow. (Spring-Retard ❸ is also removed together.)
(4) As for reinstalling, take the opposite sequence to removal sequence.







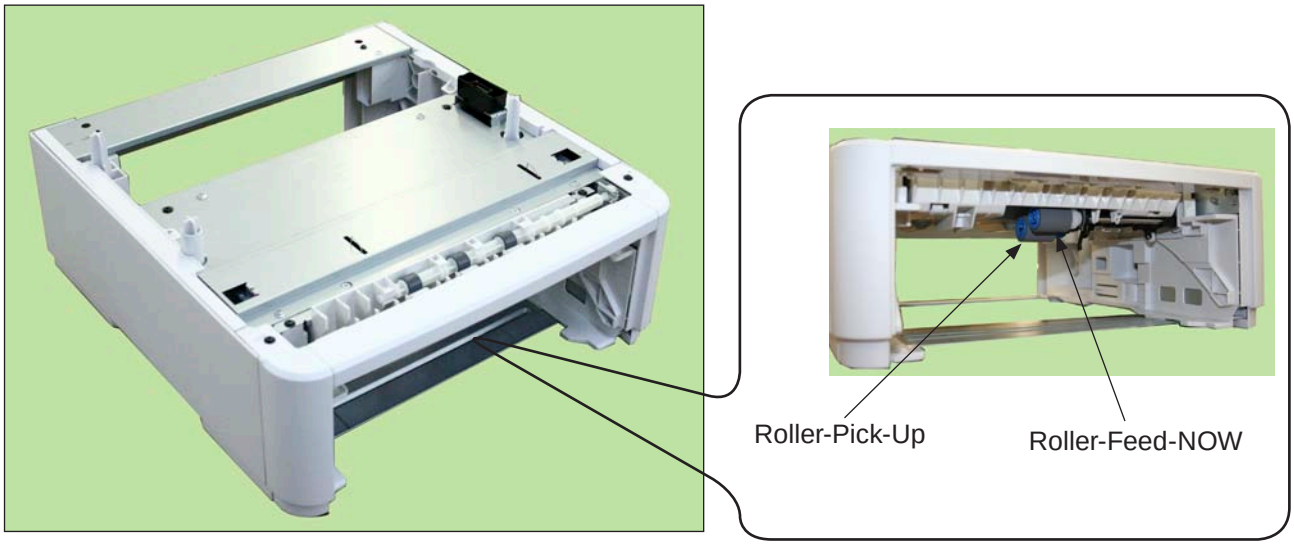
4. Cleaning of Paper Feed Roller and Separation Roller

Clean the rollers when [392: Paper Jam] often occurs.

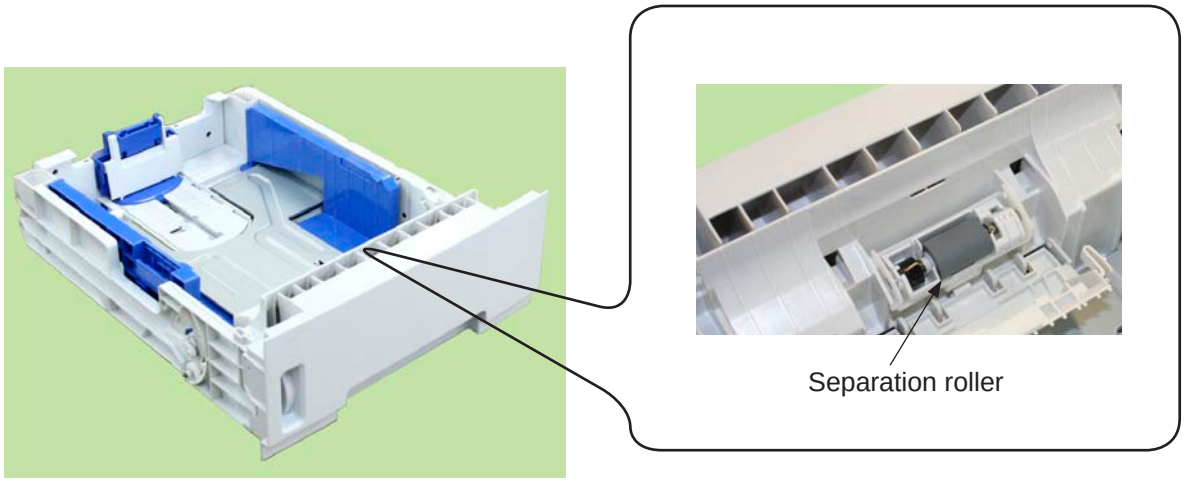
(1) Pull the paper cassette.

(2) Wipe off paper-feed rollers (two rollers) with a wet cloth which is wrung or LED lens cleaner.

Memo! The LED lens cleaner is attached with the toner cartridge for the replacement.



(3) Open Retard-Cover of the paper cassette, and wipe off the separation roller with a wet cloth which is wring or LED lens cleaner. (See Restard-Cover for how to open it.)



5. Procedure for Troubleshooting

5.1 Precautions for Troubleshooting

(1) Check the basic items to be checked in the user's manual.
(2) Obtain detail information at the failure from customers as much as possible.
(3) Inspect the status which is close to the status at the failure.

5.2 Preparation before Troubleshooting

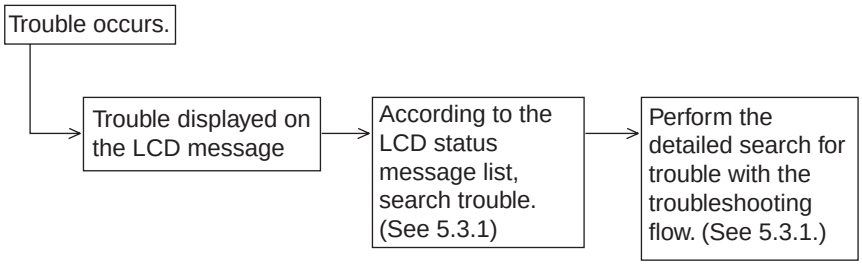
(1) Display of Operator Panel

The failure status is displayed on the LCD (Liquid crystal display) of the operator panel. Follow the message displayed on LCD and make appropriate repairs.

B430dn

5.3 Troubleshooting Method

When trouble occurs in the device, search the trouble with the following steps.


Trouble occurs.
Trouble displayed on the LCD message
According to the LCD status message list, search trouble. (See 5.3.1)
Perform the detailed search for trouble with the troubleshooting flow. (See 5.3.1.)

5.3.1 LCD Status Message List

The list of statuses and trouble displayed as the message format in LCD is outlined in Table 5-1.

Table 5-1 List of Statuses and Trouble of Second Tray unit

Category	LCD Status Message		LED		Trouble or Status	Handling
	Japanese	English	Ready	Atten		
Jam Error (Paper Feeding)	Open the top cover. 392: Paper Jam	OPEN UPPER COVER 392:PAPER JAM	OFF	Blinking	Notifies that a jam occurs during the paper feed from the Second Tray unit.	• Check paper in the Second Tray unit. Open and close the top cover to recover printing, and delete the error display. • If it occurs frequently, take action according to the troubleshooting flow.
Jam Error (Paper path)	Open the top cover. Nnn: Paper jam *nnn: 381/382/389	OPEN UPPER COVER nnn:PAPER JAM *nnn:381/382/389	OFF	Blinking	Notifies that a jam occurs while paper is running through the paper path.	• Check paper in the extended paper feed unit. Open and close the top cover to recover printing, and delete the error display.
Jam Error (DUPLEX)	Open the rear cover. 372: Paper jam	OPEN REAR COVER 372:PAPER JAM	OFF	Blinking	Notifies that a jam occurs while printing from the duplex unit.	• Check paper in the extended paper feed unit. Open and close the top cover to recover printing, and delete the error display.
Size Error	Load mmmm/pppp and press the online switch. 462: Tray2 size is wrong.	LOAD mmmm/ pppp AND PRESS ONLINE SWITCH 462:TRAY2 MEDIA MISMATCH	OFF	Blinking	Notifies that the paper size during the paper feeding from the Second Tray unit is not correct.	• Check ht epaper in the Second Tray unit. In addition, check if the paper is not overlapped. Open and close the top cover to recover printing, and delete the error display.
	Open the top cover. Nnn: Paper size error. *nnn: 380/381/382/389	OPEN UPPER COVER nnn:PAPER JAM *nnn: 380/381/382/389	OFF	Blinking		
Media Error	Load mmmm/pppp and press the online switch. 462: Tray2 size is wrong.	LOAD mmmm/ pppp AND PRESS ONLINE SWITCH 462:TRAY2 MEDIA MISMATCH	OFF	Blinking	The media type in the Second Tray unit is different from the edition media type.	• Load paper requested to the Second Tray unit.
Tray Paper Out	□ Tray2 Paper Out	□ TRAY2 EMPTY	OFF	Blinking	Notifies that there is no paper in the Second Tray unit.	• Load paper in the Second Tray unit.
	Load mmmm. 492: Tray Paper Out	LOAD mmmm 492:TRAY2 EMPTY	ON	OFF		

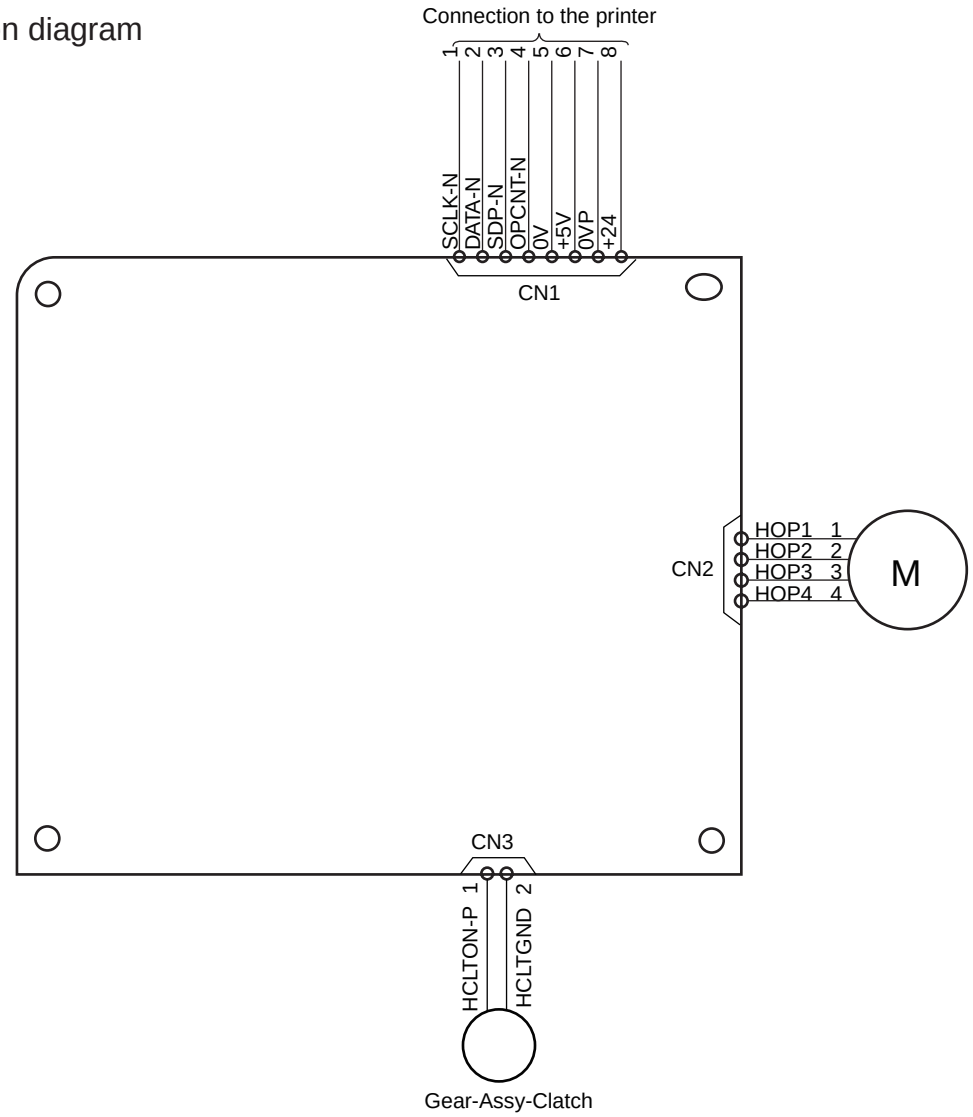
- (Jam Error)

Paper Feed Jam

- Does a jam occur around the entrance when turning on the power?
  - Yes — Is the paper on the entrance sensor plate?
    - Yes — Remove the paper.
  - No — Does the entrance sensor plate work normally?
    - No — Replace the entrance sensor plate.
  - Yes — Replace the high-voltage power/ sensor board or entrance sensor.
- NO — Does the paper inlet jam occur when paper is fed.
  - Yes — Is the paper on the entrance sensor plate?
    - Yes — Does the entrance sensor plate work normally?
      - No — Replace the entrance sensor plate.
    - Yes — Clean the high-voltage power/ the entrance sensor on the sensor board. Or replace the high-voltage power/ sensor board or entrance sensor.
  - No — Replace the hopping roller shaft Assy or paper cassette.
- No — Are the hopping roller and paper feed roller rotated?
  - Yes — Load the paper appropriately.
- No — Is the pulse motor rotated?
  - Yes — Replace the hopping roller shaft Assy or the one-way clutch gear of the paper-feed roller Assy.
- No — Is the connector appropriately connected?
  - No — Connect the connector appropriately.
- Yes — Check the coil resistance of the pulse motor.Is it normal (about 4.9Ω)?
  - No — Replace the stepping motor.
- Yes — Replace the OT7 board.

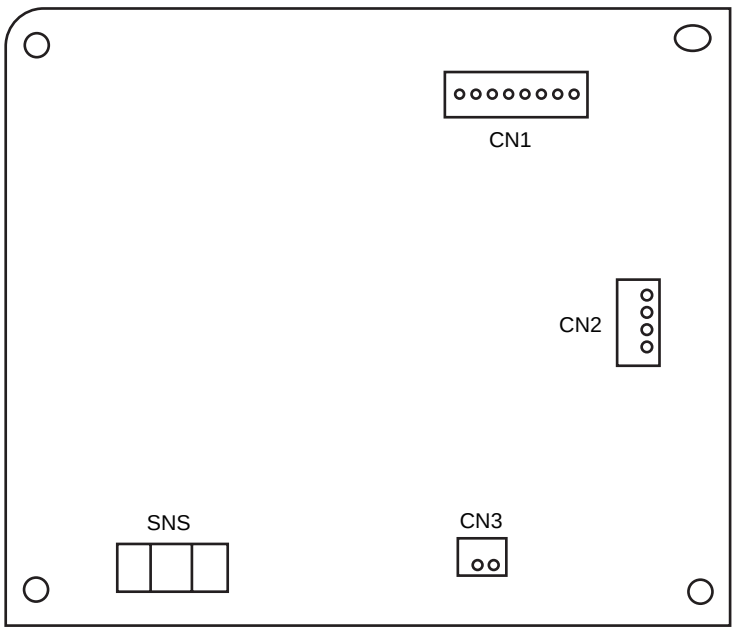
6. Connection Diagram

6.1 Connection diagram



6.2 Board Arrangement

OT7 board



•CN1 Connector Pin Allocation
(Connection to the Main control board)

	PIN No.	I/O	Signal	Function
1	1	I	SCLK-N	Clock
2	2	I/O	DATA-N	Data
3	3	O	SDP-N	OPT Transmission Mode
4	4	I	OPCNT-N	Control Signal
5	5	C	0V	Logic Ground
6	6	I	+5V	Logic Circuit Power supply
7	7	C	0VP	Analog Ground
8	8	I	+24V	Motor/ Clutch Drive Power

•CN2 Connector Pin Allocation
(Connection to the pulse motor)

	PIN No.	I/O	Signal	Function
1	1	O	HOP1	Motor Drive Power
2	2	O	HOP2	Motor Drive Power
3	3	O	HOP3	Motor Drive Power
4	4	O	HOP4	Motor Drive Power

•CN3 Connector Pin Allocation
(Connected to Hopping clutch.)

	PIN No.	I/O	Signal	Function
1	1	O	HCLTON-P	Clutch Drive Power
2	2	C	HCLTGND	Analog Ground

Appendix D Network Interface

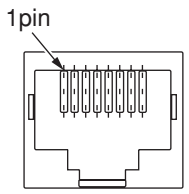
(1) Connector
- 8-pin modular jack

(2) Cable
- Category-5 non-shielded twisted pair cable with RJ-45 connector

(3) Signal

PIN No.	Signal name	Direction	Function
1	TXD+	FROM PRINTER	Transmit Data+
2	TXD-	FROM PRINTER	Transmit Data-
3	RXD+	TO PRINTER	Receive Data+
4	–	–	Not used
5	–	–	Not used
6	RXD-	TO PRINTER	Receive Data-
7	–	–	Not used
8	–	–	Not used

(4) Exterior



(5) Physical Size

a) Transfer method by CSMA/CD

b) Transfer protocol

Packet type	Support	Remarks
Ethernet II	○	
IEEE802.3	○	
IEEE802.3+IEEE802.2	○	
IEEE802.3+IEEE802.2+SNAP	○	

(6) Protocol List

Protocol Family	Protocol used in Printing (1)	Protocol Used in Setting reference (2) and Change (3)	Other Protocols
TCP/IP	LPR IPP FTP SMTP HTTP (Other than IPP)	HTTP Telnet FTP NetBEUI SNMP DHCP/BOOTP AutoIP DNS UPnP SLP	TCP, IP, ICMP, ARP UDP,IPv6,LLTD,Windowa Relly
NetBEUI	SMB, CIFS	WINS	NetBIOS
NetWare	Q-Server over IPX Q-Server over IP R-Printer N-Printer	NCP SNMP	SPX, IPX, SAP, RIP
EtherTalk	PAP	NBP	ELAP, AARP, DDP, AEP, ZIP, RTMP, ATP
EAP (B420/B430/B440)			EAP-TLS,PEAP

(7) TCP/IP

a) Supported OS

Windows2000 Server(32/64bit)
WindowsVista(32/64bit)
Windows2000
WindowsXP(32/64bit)

b) LPR

LPR is an application to process printing data.

LPR of this system supports multiple clients. In addition, it offers multiple connections to one client.

Item	Factory Default	Setting Range	Contents
The number of connection clients	1 to 8 clients	1 to 8 clients	It shows the number of simultaneous connectable clients. Up to 8clients can be connected at the same time.

Command Initial letter	LPR Option	Purpose	Support
H	Specify by the default	Host name of a machine to call LPR. Printing the host name on the banner sheet	○
P	Specify by the default	Log-in name of a user who called LPR Printing a user name on the banner sheet.	○
J	Specify by -J option	Printing a job name on the banner sheet. Default: File name	○
C	Specify by -C option	Printing a job type on the banner sheet Default: System name	○
L	Specify by the default Unspecify by the -h option.	Specification of the literal banner sheet	○
f	Specify the volume by the -# option	Data file name to be printed The number of strings of this command depends on the volume. (No support)	○
U	Specify by the default	File name deleted at the print completion.	–
I	Specify by the -I option	The number of indent characters at a output line	–
W	Specify by the -w option	Specification of page width	–
M	Specify by the -m option	Email transmission specification at the print completion.	–
S	Specify by the -s option	Specification of symbol link to the data file	○
1/2/3/4	Specify by -1/-2/-3/-4 option	Font specification	–

c) FTP

FTP is an application to process the print data.

The FTP of this system supports multiple clients. Also, it provides multiple connections to each client.

Item	Factory Default	Setting Range	Contents
The number of connection clients		1 to 8 clients	It shows the number of simultaneous connectable clients. Up to 8clients can be connected at the same time.

d) Telnet

Telnet is an application to perform the menu reference/ change of the network / printer.

Telnet of this system supports simultaneous connection of multiple clients which are individual users.

Item	Factory Default	Setting Range	Contents
The number of connection clients		1 client	It shows the number of simultaneous connectable clients.
Terminal mode	VT-100	VT-100	It shows the control mode of the connection client terminal. VT-100 is only support terminal mode.
The number of columns	80 columns	80 columns	It shows the number of digits of the connection client terminal. The supported digit number is fixed to 80.
The number of lines	25 lines	25 lines	It shows the number of digits of the connection client terminal. The supported digit number is fixed to 25.
Idling time completion	300 seconds	60 to 7200 seconds	It shows the idling time completion of connection client.

e) HTTP

HTTP is an application to perform reference/ change of the network/ printer.

HTTP of this system supports simultaneous connection of multiple clients which are individual users. In addition, it offers multiple connections to one client.

Item	Factory Default	Setting Range	Contents
HTTP version	1.0	1.0	It shows the version of HTTP in executing.

f) SNMP

SNMP is an application to perform reference/ change of the network/ printer.

SNMP of this system supports simultaneous connection of multiple clients which are individual users. In addition, it offers multiple connections to one client.

(8) NetWare

a) Supported OS

Netware file server 2.2C/ 3x/ 4.0, 4.1(Binary model/ NDS support)

b) R-Printer

R-printer is an application of process the print data.

R-printer of this system supports multiple print servers. In addition, it offers one connection to one client. Multiple connections are not available to one printer server.

Item	Factory Default	Contents
Printer Name	OIxxxxxx -prn1 MLxxxxxx -prn1 Etherxxxxxx -prn1	The last 3 bytes of MAC address are set in xxxxxx of the default. By this setting, the default is not overlapped with other printers manufactured by OKI DATA. Overseas: OIxxxxxx-prn1 Japan: MIxxxxxx-prn1 OEM: Etherxxxxxx-prn1 Printer Name has to be set in NetWare Server by the Novell tool.
Job Timeout	10 seconds	It is a timeout value which works only when a job with a specified size is received.
Print Server Name	OIxxxxxx MIxxxxxx Etherxxxxxx	The last 3 bytes of MAC address are set in xxxxxx of the default. By this setting, the default is not overlapped with other printers manufactured by OKI DATA. Overseas: OIxxxxxx Japan: MIxxxxxx OEM: Etherxxxxxx Print Server Name has to be set in NetWare Server by the Novell tool. It is not necessary to input this value, and if this column is blank, SoftNIC can find out Print Server to be automatically printed and connect to it.

c) Q-Server

Q-server is an application to process the print data.

The Q-server of this system supports multiple file servers. In addition, it offers multiple print servers to one file server.

Item	Factory Default	Contents
Print Server Name	Olxxxxxx MLxxxxxx Etherxxxxxx	The last 3 bytes of MAC address are set in xxxxxx of the default. By this setting, the default is not overlapped with other printers manufactured by OKI DATA. Overseas: Olxxxxxx Japan: Mlxxxxxx OEM: Etherxxxxxx Print Server Name has to be set in NetWare Server in advance by the Novell tool.
Printer Name	(Print Server Name)-prn1	As for the default, “-prn1” is added to the last of the above Print Server Name. Print Server Name has to be set in NetWare Server in advance by the Novell tool. (However, it seems that Netware can be operated if it is omitted.)
File Server Name	NULL	Enter a name of File Server to be connected. File Server is the File Server where each setting value is specified by the Novell tool. It is not necessary to input this value, and if this column is blank, SoftNIC can find out Print Server to be automatically printed and connect to it.
Password for File Servers	NULL	Enter a password when connecting to File Server. A password has be connected to the NetWare server in advance by the Novell tool. It is not necessary to input this value, and if this column is blank, the password is not used when connecting to the File Server. In such a case, the password has to be set in the File Server.
Job Polling Rate	4	Specify an interval to check whether a job occurs. It is not necessary to input this value, and if this value is blank, the default, “4 seconds” is enabled.
Tree	NULL	Enter a name of Tree to be connected. Tree has to be set in the NetWare server in advance by the Novell tool.
Context	NULL	Enter a name of Context to be connected. The Context has to be set in the NetWare server in advance by the Novell tool.

(9) EtherTalk

a) Supported OS

MacOS 9.X, Mac OS X

b) PAP

PAP is an application to process the print data.

Item	Factory Default	Contents
EtherTalk Zone Name	*	Specify a Zone of EtherTalk. It is not necessary to input this value, and if this column is blank, all of SoftNIC should be connected to Zone.
EtherTalk Printer Name	Model Name	Specify an identifier of the printer on EtherTalk. It is not necessary to input this value, and if this column is blank, the default is used. If there is a printer with the same name in a zone specified by EtherTalk Zone Name, an ordinal number is added to the last.

(10) Setup

Each setting item can be set up by the menu and network administration tool.

Operation Panel Display		Default	Function
Setting item (Upper level)	Setting item (lower level) *: Default		
TCP/IP	Enable Disable	*	Specify Enable/ Disable of TCP/IP protocol.
IP version	IP v4 IP v4+v6 IP v6	*	Set an IP version. Operate with IPv4 at "IPv4". (IPv6 is disabled) Operate with both IPv4 and IPv6 at "IPv4+v6". Operate with IPv6 at "IPv6". (IPv4 is disabled)
NETBEUI	Enable Disable	*	Specify Enable/ Disable of NETBEUI protocol.
NETWARE	Enable Disable	*	Specify Enable/ Disable of NetWare protocol.
ETHERTALK	Enable Disable	*	Specify Enable/ Disable of EtherTalk.
Frame	Auto 802.2 802.3 ETHERNET II SNAP	*	Set the frame type. [Display Conditions] • "NETWARE" is enabled.
IP address setup	Auto Manual	*	Set the setting method of an IP address. [Display Conditions] • "TCP/IP" is enabled, and "IP VERSION" is IP v4 or IPv4+V6.
IP address	xxx.xxx.xxx.xxx	-	Set an IP address. [Display Conditions] • "TCP/IP" is enabled, and "IP VERSION" is IP v4 or IPv4+V6.
Subnet mask	xxx.xxx.xxx.xxx	-	Set the subnet mask. [Display Conditions] • "TCP/IP" is enabled, and "IP VERSION" is IP v4 or IPv4+V6.
Gateway address	xxx.xxx.xxx.xxx	*	Set the gateway address. [Display Conditions] • "TCP/IP" is enabled, and "IP VERSION" is IP v4 or IPv4+V6.
WEB	Enable Disable	*	Specify Enable/ Disable of WEB. [Display Conditions] • "TCP/IP" is enabled.
TELNET	Enable Disable	*	Specify Enable/ Disable of TELNET. [Display Conditions] • "TCP/IP" is enabled.
FTP	Enable Disable	*	Specify Enable/ Disable of FTP. [Display Conditions] • "TCP/IP" is enabled.
SNMP	Enable Disable	*	Specify Enable/ Disable of SNMP. [Display Conditions] • "TCP/IP" or "NETWARE" is enabled.
Network size	Normal Small	*	Normal: usually, this setting is used. In the NORMAL, even if connected to the HUB having the spanning tree function, the device operates efficiently. However, when the computer is connected to two or three small LANs, it takes long to start a computer. At SMALL, the computer supports two or three small LANs and large LAN, however, when connected to the HUB having the spanning tree function, the device may not operate efficiently.
Connection to HUB	Auto 100BASE-TX FULL 100BASE-TX HALF 10BASE-T FULL 10BASE-T HALF	*	Set a method of link to the HUB. When setting to Auto, the connection method is automatically selected for all of the HUB, and connection is tried. When selecting other items, the connection to the HUB is tried only by the connection method.
Factory Default	Execute	-	Initialize the network menu.